

CLASSIFIED ADVERTISING

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REPLIES to advertisements with Box No. should be addressed to Air Conditioning & Refrigeration News, 5229 Cass Ave., Detroit, Mich.

BUSINESS OPPORTUNITIES

APPLIANCE, HEATING, air conditioning and commercial refrigeration business, all leading lines, located in live Wisconsin city over 40,000 population in center of three large R.E.A. projects. Will sell all or part interest to active partner on inventory basis. No real estate, low rent. Box 1088, Air Conditioning & Refrigeration News.

EQUIPMENT FOR SALE

TRAILER FOR SALE. Reo Coupe-Detroit Aero Trailer. Forty-two feet overall. First class running condition. Built for household appliance merchandising. Bargain price. RACKLIFF BROS. CO., INC., 250 Park Street, New Britain, Conn.

DEALERS AND REALTORS make big profit on small investment, handling reconditioned refrigerators. We have 2,500 General Electric, Frigidaires, Kelvinators, Norges and Westinghouses, completely rebuilt (compressors, motors and controls overhauled) and re-sprayed to look like new. Send for free illustrated catalog listing 34 models, specifications and low prices. INTERBORO, 350 Pearl Street, Brooklyn, N. Y.

REPAIR SERVICE

DOMESTIC CONTROLS repaired: Ranco pencil \$1.75, Ranco box \$2.00, General Electric \$2.00, Tag \$2.00, Cutler-Hammer \$2.00, Penn \$2.00, Bishop Babcock \$2.50, Majestic \$2.50, Penn magnetic \$2.50, G. E. Frigidaire \$2.50. In business over 20 years. Our name is our guarantee. UNITED SPEEDOMETER REPAIR CO., INC., 436 West 57th Street, New York City.

CONTROL REPAIR service. Your controls repaired by expert mechanics, with special precision equipment. Supervised by graduate engineers. We stress perfection and dependability before price. One year guarantee on domestic controls. Any bellows operated device repaired. HALELECTRIC LABORATORY, 1793 Lakeview Road, Cleveland, Ohio.

ELECTRIC MOTOR repairing, armature and stator rewinding on all refrigeration and air conditioning motors, A.C. or D.C. Pick-up and delivery service. All work guaranteed. Motors bought and sold. Burnt out motors bought. Prices on request. COMMERCIAL MOTOR SERVICE CO., 601 West 26th St., New York, N. Y.

GENERAL ELECTRIC and Westinghouse hermetic units rebuilt. Guaranteed unconditionally for one year and returned to you refinished like new. Units are entirely disassembled in our large modern shop, tested through every step of production during rebuilding with the most complete test equipment for accurate work, then subjected to exhaustive running tests under actual operating conditions. Each unit measures to exacting standards after rebuilding. Prices \$30.00 on General Electric DR-1, DR-2, and Westinghouse; \$35.00 on General Electric DR-3. Quotations furnished on other models. Quick service—guaranteed work. REFRIGERATION MAINTENANCE CORP., 321-27 East Grand Avenue, Chicago, Ill.

PATENTS

HAVE YOUR patent work done by a specialist. I have had more than 25 years' experience in refrigeration engineering. Prompt searches and reports. Reasonable fees. H. R. VAN DEVENTER (ASRE), Patent Attorney, 342 Madison Avenue, New York City.

BUNDY TUBING

Copper-Brazed Steel. Copper Coated Inside and Out. Sizes: 1/8" to 3/4" O.D. BUNDY TUBING CO., DETROIT



FOR SEAL REPLACEMENTS

USE CHICAGO SEALS
CHICAGO SEAL CO.

9 S. CLINTON ST. — CHICAGO, ILL.

For Information on Motors
FOR ALL TYPES OF
Air Conditioning and
Refrigeration Equipment
WRITE TO

Wagner Electric Corporation
1411 PLYMOUTH AVE.
ST. LOUIS, MO.

Engineered
Refrigerant
Controls
— For Highest
Evaporator Efficiency
Alco Valve Co. St. Louis, Mo.

Drastic Changes In 1939 Refrigerators Indicated

(Concluded from Page 1, Column 5) larly refrigerators, during the past two years, Mr. Thompson said that 1939 should be a year of re-analysis and reorganization as far as both selling methods and sales organizations are concerned.

Explaining the glut of 1937 models on this year's refrigerator market, Mr. Thompson said that late in 1936 and during the first half of 1937, all industries were faced with the ever-present threat of labor unrest, and rising prices in all commodities and raw materials, brought about through rising labor costs.

"These two conditions made for over-purchase of raw and manufactured materials for inventories," he pointed out. "Distributors and retail outlets purchased large stocks of equipment during 1937, because manufacturers could give them no assurance of stable prices. Many factories actually worked over capacity, fearing labor troubles and higher costs."

'38 INVENTORIES BULGED

Retail buying did not hold up to the pace of manufacturing and dealer buying, he added, and as a result 1938 found an overbalance of inventories to sales possibilities.

"Manufacturers generally carried over into 1938 considerable stocks of 1937 models," he went on. "This was particularly true in the case of refrigerators. Many decided to use them for promotional models and low-income group buying in 1938. Prices on these models were cut, for clearance, considerably lower in many cases than the prices paid by the dealer for the same models bought previously in the year."

"Many manufacturers changed the 1938 design of the appliances very little. For example, the exterior design of practically all refrigerators remained the same. Consequently, customers could not detect readily any differences between 1937 and 1938 merchandise, and for well into 1938 there has been a demand for the lower-priced 1937 models."

DEALERS NOW UNDERSTOCKED

"Present indications, however, are that the pendulum has swung to the other extreme. Dealers and distributors today are considerably understocked. There seems to be a desire to 'make the sale first and then buy the stock.' Under-inventory is causing many lost sales."

Sales management, Mr. Thompson declared, has the responsibility of "making field organizations realize that there will be more selling in 1939, and less order taking."

While a major appliance, such as a refrigerator, always has been considered a specialty, many retailers in 1938 relied upon price advertising in a general attempt to capture the prospect's order, he continued.

"Little constructive, creative selling was done," the Westinghouse official went on. "Much of this was caused by the impression in the industry that refrigerator sales volume had reached such a point, and attained such consumer acceptance, that refrigerators fast were coming into the 'traffic appliance' class."

BACK TO FUNDAMENTALS

"I feel that 1939 will see a move back toward the old selling fundamentals on electric refrigeration, stressing its many advantages and food-preservation qualities."

"In 1939, inventories of discontinued refrigerators will be low. In fact, the industry seems to be determined to go forward with manufacturing schedules closely paralleling sales, and thus avoid an excess of obsolescence."

"Economic trends will be a dominant factor, of course, but we look for a substantial increase in 1939 sales. There will be an increased trend to trading in old troublesome models. About 15% of present sales are accounted for by trade-ins; 18 to 20% likely will be the 1939 figure."

Through aggressive promotion by utilities, cooperative activities of manufacturers in Modern Kitchen Bureau, and larger advertising efforts on the part of individual manufacturers, electric range selling is fast increasing the profit period in its development, Mr. Thompson said.

"Sales of electric ranges jumped from 50,000 in 1933 to 405,000 in 1937," he continued. "Like all other

business, 1938 volume is less than that of 1937 because of general business disturbances. It is a fact, however, that 1938 sales have not dropped to the same extent that sales of other types of appliances decreased.

"The rapid strides in the acceptance of electric cookery and the relatively large increase in electric range sales does not indicate, however, that the basic promotion work has been finished," he warned. "By the same token, it does not indicate that the part utilities should play in the sale of electric ranges has in any way diminished, nor should it diminish in the near future."

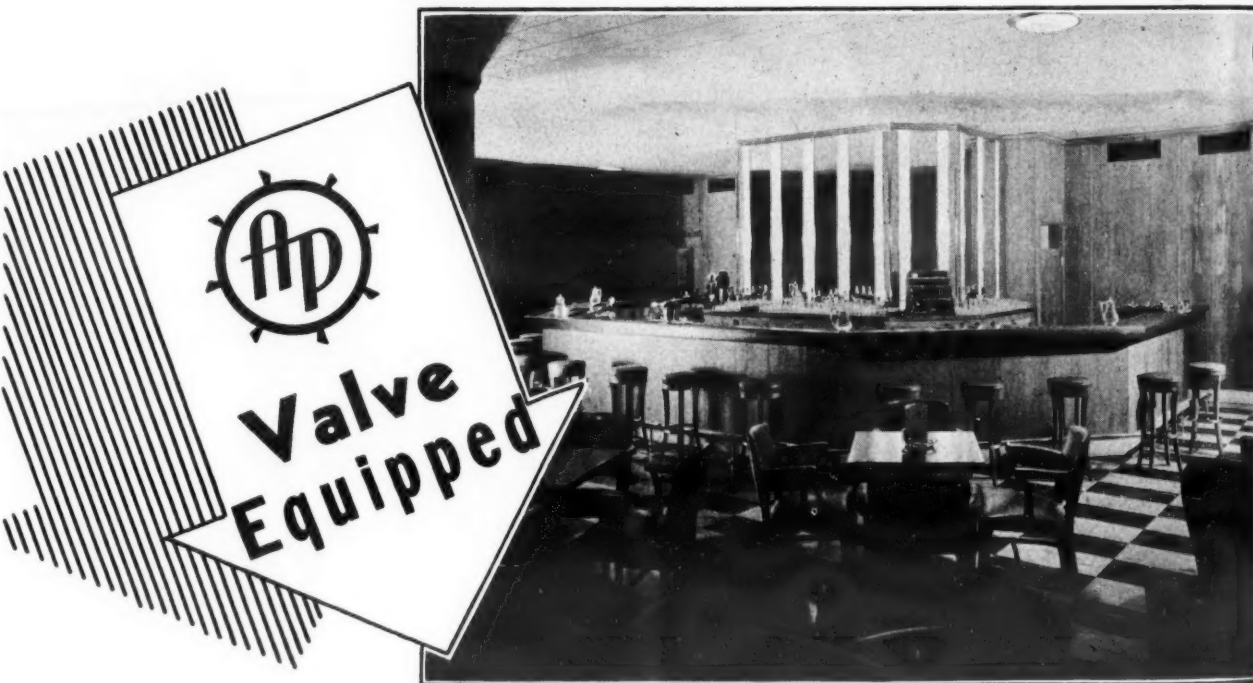
"With the arrival of the bathroom as one of the most prized home possessions of modern living," Mr. Thompson continued, "hot water, next to electric cooking, has become the one item that brings most happiness and personal satisfaction into the home."

"Proof of this is shown in the fact that only 5,000 electric water heaters were sold in 1932, as against 115,000 in 1937. Acceptance of electric cookery, plus the rapidly growing interest in the planned electric kitchen, will lend even greater assistance in the sale of electric water heaters in the future."

Kelvinator Makes Job Shifts In Commercial Dept.

(Concluded from Page 1, Column 2) north central division, and his replacement in Detroit by C. L. Barlow. Technical and training department continues under the management of Hugo F. Hutzler, aided by L. G. Estep as assistant manager.

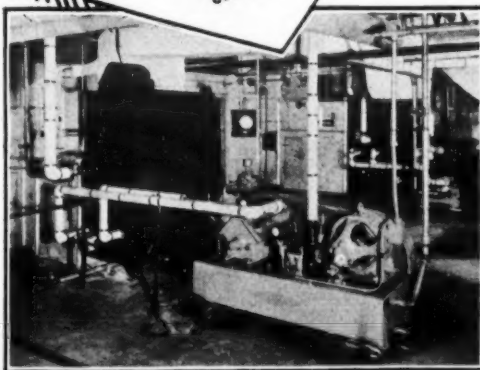
"Coffee and . . . In Year 'Round Comfort at Cleveland Hotel • Coffee Shop..



"Installed and forgotten" — That's the "label" given to A-P Valves by the men who use them and watch their unusual efficiency on every Air Conditioning and Refrigeration installation. This type of service-satisfaction builds goodwill, not only for owners, like the Cleveland Hotel, but more particularly for the Engineers responsible for these famous installations.

Add A-P Valve reputation to your own — it will mean more profit, less service expense!

Installation — Cleveland Hotel Coffee Shop, Cleveland, Ohio
Sold and Installed by A-P Valves Engineering Co., Cleveland, Ohio
Valves — A-P
Purchased through Harry Alter Company, Cleveland, Ohio
Carbonate Equipment used to Air Condition Cleveland Hotel Coffee Shop



REFRIGERATION PARTS JOBBERS, WHO RECOGNIZE QUALITY, STOCK CONTROLS

AUTOMATIC PRODUCTS COMPANY
2150 NORTH THIRTY-SECOND STREET
MILWAUKEE WISCONSIN

Export Address:
100 Varick St., New York City

DEPENDABLE
THE BYWORD FOR A-P VALVES

\$2,800 Sought In 'Breach Of Contract' Suit

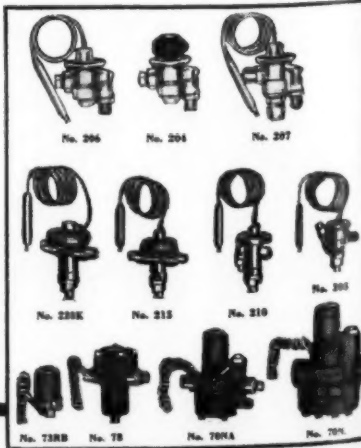
(Concluded from Page 1, Column 5) the state in 1932 in whatever quantities and at whatever time he desired, and that the defendant wrongfully canceled the contract.

He is seeking damages for the alleged loss of profits caused by his inability to deliver refrigerators for which he had orders, commissions due for refrigerators sold by the manufacturer in the exclusive territory of the plaintiff, advertising expenses, and other expenses.

The defendant in answer declared that a written contract and shipping schedules of March 1, 1932, constituted the only contract between the parties; that the contract provided that the plaintiff should purchase a certain number of refrigerators each month during March to October, inclusive, and provided that if the plaintiff failed to purchase his monthly quota of refrigerators during any of these months, the defendant was entitled to terminate the contract. As a consequence of the plaintiff failing to purchase the required number of machines, the contract was canceled.

Up to June 16, 1932, the defendant states, the plaintiff had purchased about 100 refrigerators, whereas the contract called for 425 by May 31.

"Obviously we could not afford to tie up the state during the best refrigerator sales season with a distributor who failed to buy even a fourth of the refrigerators he had agreed to purchase," the defendant's brief states.



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The Newspaper of the Industry

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THE COLD CANVASS

By B. T. Umore

Old B. T. U. Reviews His Buffalo Convention Notes

More wives were in evidence at the convention than ever before. (It just seems impossible to keep those rumors about conventions from getting around.) Refrigeration service engineers' wives are no different from anyone else, it would seem. When J. J. Kline of Springfield, Ill. won the tube-bending contest, it was his wife who said, "I'll take this," when the prizes were being distributed.

Claude A. Brunton of Huntington, W. Va., newly elected president of the society, set a good example on bringing wives to the convention by having his own attractive wife on hand.

Irving Alter acquired a new name at the convention, becoming known as "Two Schlitz" Alter. We know the story, but Irving is having so much fun telling it on himself, we won't spoil it for him.

A prominent conventionite with a sales instinct and an unquenchable thirst evolved a neat trick during the convention that paid dividends. Walk- (Concluded on Page 6, Column 5)

Wilson Named Brunner Special Field Man

UTICA, N. Y.—Appointment of F. E. Wilson as special field representative of Brunner Mfg. Co. has just been announced by B. J. Scholl, sales manager of the company.

Mr. Wilson's activities will not be confined to any one locality, Mr. Scholl said in announcing the appointment, but will include cooperative work with Brunner territorial (Concluded on Page 16, Column 1)

Replacement Field Growth Shown In Survey For Nema

CHICAGO—Increase in the replacement sales market for household electric refrigerators is brought out in a study recently completed for the Household Refrigeration Section of National Electrical Manufacturers Association by Arthur Hirose and Don Parsons of the McCall Corp., publisher of McCall's and Redbook magazines.

The study was presented to Household Refrigeration Section members during the recent Nema meeting here.

Although electric refrigerators have saturated their initial market to a greater degree than all other electrical appliances except the iron, the washer, and the toaster, replacement sales of electric refrigerators (Concluded on Page 3, Column 3)

Virginia Smelting Holds Annual Sales Meeting

WEST NORFOLK, Va.—Annual sales conference of Virginia Smelting Co. was held here Oct. 26 to 29. Sessions of the meeting were held at a nearby country club, with a dance, golf matches, and a sightseeing trip the major elements on the entertainment program.

General optimism regarding the 1939 season was expressed by all those present, including the following plant executives and department (Concluded on Page 16, Column 1)

Stewart-Warner To Unveil New Range Line Nov. 28

CHICAGO — Formal entry of Stewart-Warner Corp. into the electric range field and first showing of the 1939 line of S-W refrigerators will be made during a national convention of distributor executives, to be held at the Edgewater Beach (Concluded on Page 3, Column 2)

Dealer Problems To Be Major Subject At League Meeting

PHILADELPHIA—Problems connected with increasing the dealer's stake in the electrical appliance merchandising business will be a major topic of discussion at the third annual conference of the International Association of Electrical Leagues, to be held in the auditorium of the Electrical Association of Philadelphia Nov. 17 to 19, inclusive.

General sessions of the conference include such subjects as "What the Electrical Leagues Can Do For the (Concluded on Page 3, Column 1)

Jeffrey Named Leonard Asst. Sales Manager

DETROIT—Promotion of Walter Jeffrey to the position of assistant general sales manager of the Leonard Refrigerator division of Nash-Kelvinator Corp. has been announced by E. R. Legg, the division's sales manager.

Mr. Jeffrey has been with the (Concluded on Page 3, Column 2)

South Bend 'Bargain Day' Nets 300 Sales

SOUTH BEND, Ind.—Sales of 300 electric refrigerators, ranges, washers, and large radios were made by electrical appliance dealers here in a recent Friday "Electrical Appliance Bargain Day" campaign, sponsored (Concluded on Page 16, Column 4)

Westinghouse To Show '39 Units at Meeting Dec. 8-9

MANSFIELD, Ohio—Westinghouse will give distributors and their field men a preview of its 1939 line of household electric refrigerators at a meeting here Dec. 8 and 9.

Progress of Service Engineers Evidenced at Buffalo Meeting

REA Is Authorized To Finance Building of Locker Plants

WASHINGTON, D. C.—Wide-spread government financing of locker plant systems through Rural Electrification Administration is now a possibility, following the recent opinion issued by the Comptroller General that the REA may use its funds for this purpose, if it wishes.

REA officials last week conferred with outside agencies regarding a policy to be followed with respect to locker plants. Announcement of a decision is expected this week.

Locker plant financing became a problem with REA as the result of a recent flood of requests for loans for this purpose.

REA already has started the construction of one locker plant, to contain 300 lockers, near Piqua, Ohio.

Should the government agency adopt an extensive financing program for locker plants, the jobs will have complete facilities, officials declare.

N. Y. Edison Won't Push Models Under 5 Cu. Ft.

NEW YORK CITY—Promotion of automatic refrigerators of less than 5-cu. ft. capacity has been discontinued by Consolidated Edison Co. of New York, Inc., according to an announcement by E. F. Jeffe, vice president in charge of sales.

In a letter to refrigerator manufacturers whose models are displayed in the showrooms of the utility and its affiliated companies and who are participating in the utility's cooperative financing plan, Mr. Jeffe explained that a recent survey had shown that automatic refrigerators smaller than 5 cu. ft. would not satisfactorily meet present-day needs. (Concluded on Page 7, Column 1)

Special Attention Given To New Problems; 1939 Meeting In St. Louis

By Alfred Jones & Phil B. Redeker

BUFFALO—Refrigeration service engineers, meeting here last Wednesday through Friday for their fifth annual convention, heard discussions of new service problems and methods in the best technical program the organization has ever sponsored, saw their members display their craftsmanship in a tube-bending contest, and viewed exhibits by manufacturers of parts and supplies.

The service men and their wives were entertained by a fast-moving entertainment program prepared under the direction of Charles Rittling of Fedders Mfg. Co.

Cheers greeted the announcement that the society had increased its membership from 1,100 to approximately 1,750, and the number of chapters from 30 to 51, during the past year. Latest chapter to join was that of Lincoln, Neb., which received its charter at the close of the convention.

Next annual convention of the refrigeration service engineers organization will be held in St. Louis sometime next November, it was decided.

The board of directors decided not to participate directly in the First All-Industry Refrigeration and Air Conditioning Exhibition in Chicago in January, giving as its reason the closeness of the dates between the society's convention and the Chicago show, but suggested that the Illinois State Association of Service Engineers might contribute to the program.

Action was taken by the directors to appoint an advertising committee, whose duty it would be to prepare suitable advertising literature for the use of the service engineers, which would be sold to them at a nominal cost.

(Concluded on Page 7, Column 1)

Prospects of Better Business Are Reflected In Gay Spirits of Refrigeration Parts Men



(1) Irving Alter of the Harry Alter Co., who took the pictures on pages 10 and 11, is caught in action by the editor, who took the pictures in this strip and also those of the tube-

bending contest which will be found on page 4. (2) Ben Scholl of Brunner, Frank Gleason of Copeland, and Frank Eversden of Kerotest, battle over some loose change like it was

an order. (3) R. C. Poole of Frosted Foods Sales Corp. gets a sly grin from Dick Townsend of Detroit Lubricator. (4) P. O. Domke of Mueller Brass Co. was extolling Mueller

products to a couple of customers. (5) R. W. Kritzer, president of Peerless of America, Inc., is assured that things down east are just fine by M. K. "Dusty" Miller of the Peerless

New York office. (6) R. Douglas Marshall (seated) new head of the Automatic Products Co. offices in New York, has a chat with boss E. A. Vallee, vice president.

Major Appliances

New Thor Laundry For Small Kitchens Can Be Stored In Little Space

DETROIT—A "Stow-A-Way" kitchen laundry, designed to fill the needs of apartment houses, cottages, homes without basements, low-cost housing developments, and rural homes served by electricity, has just been introduced by Hurley Machine division of Electric Household Utilities Corp., manufacturer of Thor laundry equipment.

Although it is but 23 3/4 inches high, 21 1/2 inches wide, and 22 1/2 inches deep, making it storeable under the kitchen sink or table, in the bathroom, or in a kitchen cabinet section, the laundry unit has a capacity of 35 lbs. of clothes per hour, and can handle a full family washing, it is claimed.

List price of the complete washer-ironer unit is \$119.95, with the ironer alone priced at \$29.95.

Retractable legs, operated by a crank, make it possible to raise the washer to a convenient working height, so that the wringer will drain into the sink if desired. The legs are equipped with rubber wheel casters, so that the unit may be moved from place to place.

The ironer fits into the wringer post hole, and is said to be able to do both ironing and pressing work; height can also be adjusted to the housewife's convenience.

Wringer itself is of light weight, most of it being made of cast

aluminum, with aluminum feed boards and concealed drain boards. It may be placed on the washer in any one of four positions, and is equipped with a detachable extension drain board of solid aluminum. When not in use, the wringer is stored in a back section of the washer cabinet itself.

Ironer requires but 9 x 12-inch storage space, and so may be stored upright in a closet or some similar space. The ironer has a chrome-plated steel shoe, and a full open end roll, 6 inches in diameter and 26 inches long. It has an automatic finger-tip pressure control, with an emergency release, and a drive housing of polished aluminum. Weighing only 37 lbs., the ironer unit may easily be lifted by the housewife.

Finished in white lacquer with black and polished aluminum trim, the washer has a water capacity of 9 gallons, with a tub 18 inches in diameter and 12 inches deep. Tub cover is of heavy gauge polished aluminum, and is equipped with a means for hanging on the side of the cabinet when not in place on the top of the tub.

Washer agitator has six vanes, and is controlled by a handle on the side of the cabinet. Washer mechanism is of new design, permanently lubricated, with twin-belt drive. Motor is 1/2 hp., permanently lubricated.

Study Needs of Home, Then Sell Water Heater as Service, Not Appliance, Utility Men Told

MILWAUKEE — Electric water heating has reached the period of consumer experience much more rapidly than any of the other major electrical appliances, Harold Canfield of Wausau told the convention of the commercial and technical divisions of Wisconsin Utilities Association here Oct. 24 and 25.

He stressed the importance of selling a water heating service rather than the water heater as only an appliance.

Before recommending the proper size of tank to deliver an adequate supply of hot water at proper temperature, a study should be made of the number of persons in the family, their ages, occupations, and habits, and number of floors to the building, number of baths, size of pipe, and length of runs, he advised.

"After having analyzed and studied the conditions and computing the tank size, we make our proposal," he continued. "If it is accepted, the installation is supervised and engineered from start to finish, with particular attention given to the plumbing, especially the replacement of long runs of pipe with copper tubing."

"To tie in with the supervisory

service," he declared, "our sales manager has devised sales campaigns incorporating original ideas as well as the tried and proved sales promotional and dealer cooperative plans. As a result, with some 23,000 residential meters, we have added 2,388 water heaters to our lines, to gain a 10% saturation."

A study of competitive fuel costs convinced the company of the economy of electric water heating, Mr. Canfield said, on an over-all efficiency and lifetime service basis. The utility's prevailing rates for water heating service also are cheaper, on an automatic basis, than oil, gas, or coal at their prevailing competitive prices, he added.

Through the presentation of this factual information by salesmen, the lower investment and supposedly lower fuel costs arguments of competitive methods were overcome, the speaker said.

In addition to individual water heaters in homes, apartments, beauty and barber shops, restaurants, factories, offices, schools, bakeries, garages, cottages, resorts, and trailer camps, the company has several resort owners using as many as 10 or a dozen heaters, and some larger homes have from two to five units.

Electric Range's Economy Demonstrated In 4-Day 'School' at Hudson's

DETROIT—A demonstration of the most economical manner of using an electric range was offered by Miss Edwina Nolan, manager of the home service section of General Electric Co., at the four-day cooking school held Nov. 1 through Nov. 4 in the model kitchen of the Home Advisory Bureau at the J. L. Hudson Co.

The cooking school was presented in conjunction with Hudson's third annual electric range show held Nov. 1 to 9, which featured a display of 47 models of the following makes of electric ranges: Frigidaire, Kelvinator, General Electric, Electromaster, Hotpoint, AB Electric, and Westinghouse.

The housewife who spends hours bending over a hot stove to prepare a meal is as far behind the times as one who clings to her pre-war hobble skirt, Detroit women learned as they watched Miss Nolan prepare from three to four complete meals at each of the four 90-minute sessions. In addition to demonstrating the speed of electric cookery, the guest lecturer also stressed the low operating cost of an electric range. Various features of the General Electric range were discussed by Miss Nolan, who explained how they could be utilized to best advantage.

Only 20% of the housewives use their electric ovens to full capacity, Miss Nolan declared, and went on to demonstrate at her final session that an entire Thanksgiving meal, complete from the 12-pound turkey and all its fixings to the holiday pudding, can be prepared simultaneously in the oven. Even the vegetables were steamed in the oven, thus eliminating the necessity of using extra current with the surface units.

Miss Nolan also pointed out that by moving the duplex unit and inserting the economizer sheet below it, housewives can heat just the portion of the oven necessary to bake a cake or pie, without using the extra current needed to heat the entire oven.

Although Miss Nolan's lectures dealt largely with the methods of obtaining the most rapid and economical performance of electricity for cookery, she also gave her listeners numerous suggestions about preparing both simple meals and holiday menus.

The model kitchen was equipped entirely with G-E appliances, and during the course of her lectures Miss Nolan commented on special features of the electric refrigerator, dishwasher, mixer, and waste disposal unit.

Miss Nolan was introduced by Jessica Meek, director of Hudson's Home Advisory Bureau.

Crosley Radio Plant In Full Production

CINCINNATI — Highlighting the trend toward generally increased business activity, Lewis M. Crosley, executive vice president of Crosley Radio Corp., has announced that the Crosley plant is in peak-season production on household radio receivers and has received substantial orders for automobile sets.

"We have been operating along an even basis in refrigeration as well as in radio," he declared, "balancing our work so that we would not go down too far. We are also producing our 1939 line of electric refrigerators and other appliances."

"We have been recalling old employees for some time, and have put several hundred back to work."

KERO TEST
Valves and Fittings
The Standard of the Industry
Kerotest Manufacturing Co.
Pittsburgh, Pa.

Prove Prospect Is Paying More For Hot Water, Advises Heater Salesman

NEW YORK CITY—"Prove it to him," is the sales theory followed by Charles H. Dinkel of the Pennsylvania Power & Light Co., Lancaster, Pa., one of the winners in the Modern Kitchen Bureau's series of contests for retail salesmen of electric water heaters.

What Mr. Dinkel seeks to "prove" to a prospect is that the prospect's existing method of getting hot water is costing him something, and that an electric water heater would cost him little, if anything, more to operate.

"When calling on a customer with regards to selling an electric water heater, I find the approach is very important, as the average customer thinks that automatic hot water is beyond the reach of his income."

"When talking to my customers and telling the importance of automatic hot water and he admits he would like to have it, but the cost of operating is too high, the rest is up to me."

GETS COST DATA

"I first ask him what method he is using at present to heat water and how much it costs per month to operate."

"I find it is very important to get a statement concerning the present cost of heating water because the average person doesn't give it much thought."

"After getting his figures, I find in most cases that amount plus a few cents a day will pay for electric automatic hot water at the turn of the faucet."

SALES DEMONSTRATION

Mr. Dinkel gives the following example:

"I called on a prospect one evening and in this particular case he was using a coal stove to heat water. After introducing myself, he told me I was only wasting my time and his, since he was not interested because his coal stove used only a ton of coal a year."

"I started to laugh, and he said, 'Do you think I'm lying?' 'Not intentionally,' I replied, 'but if I prove that you are wrong, will you buy an electric water heater?' He agreed."

"I was in the living room by this time and asked him if he had a bathroom scales. It was quickly produced. We went to the basement with the scales."

PROVES HIS POINT

"I proceeded to weigh out 5 1/2 lbs. of coal, and asked him if that was all the coal he used in a day. He said he used more than that in the morning before going to work."

"I explained to him that in buying coal we pay for it by the ton, which in this locality is 2,000 lbs., thus, the 5 1/2 lbs. per day."

"I sold him, and also his neighbor, the same evening, who also thought that he was getting his for nothing during the winter by using a coil in the furnace."

"After impressing upon the customers their present method of heating water is costing them something, I find in most cases they become interested in electric water heating."

List of Advantages Sells Heaters

"I don't believe you can continually work one district unless you tell the truth about your product, so I equip myself with the facts about water heaters, such as the advantages of electric heaters over other methods, why the electrically heated tank with the thermostatically controlled heat will add years to the life of the tank and save plumbing bills," says L. R. Carter, the Washington Water Power Co., Spokane, Wash., a prizewinner in August.

"I take the advantages one at a time and give them the Advantage Proof Action test. For instance, it is modern, entirely automatic, no

BUNDY TUBING
Copper-Braced Steel. Copper Coated Inside and Out. Sizes: 1/4" to 3/4" O.D.
BUNDY TUBING CO., DETROIT

fires to build, no muss or time required to look after it. It is modern, isn't it?

"It is safe, endorsed by the Fire Underwriters, no noise, flue, or fire. Can you imagine a water heater more safe?"

'IT IS HEALTHFUL'

"It is healthful; beauty experts recommend removal of make-up with hot water and soap, followed by a cool rinse. This is one of the most economical beauty treatments on the market, don't you think?"

"Then in time of sickness, day or night, hot water is so convenient and has been known to save life. (I show them copy of testimonial letter.)"

"Time saving. Hot water to start the day off, hot water for starting the breakfast cereal, coffee, etc."

ECONOMY STORY

"It is economical. Four hundred gallons of 150° water for a dollar. Forty gallons for a dime. Would you step next door and fire their monkey stove two or three times a day and clean the ashes out for 10 cents? Of course you wouldn't, and worse yet, you would have to buy the coal for your own stove besides all the muss and bother."

"Just think! We will furnish the clean electric heat and do all the controlling and delivering to you 40 gallons of 150° water for only 10 cents per day. Isn't that economical?"

"We are so sure you will be thoroughly satisfied we will install a new modern tank and if, after 30 days use, you are not entirely satisfied, we will refund your down payment and all it will have cost you is the small amount of electricity used."

COST SURVEY

"I explain and fill out a cost survey of haphazard water heating and show them they are actually paying for a water heater and still they aren't enjoying the use of one."

"I explain Prof. Street's tests at the State College of Washington, the Purdue University tests, proving money can be saved by the removal of the water heating coils from the furnace. The electric water heater gives them controlled hot water as little or as much as they wish, when they want it, no waiting for it to heat."

Mr. Carter finds that calling back on satisfied users and installing a new gasket for a worn out one now and then pays him great dividends.

G-E Laundry Men 'Sail' Around World In Drive

NEW YORK CITY — "Sale-ing, sale-ing, over the bounding main . . ." sang the crews of General Electric home laundry distributor ships as they figuratively weighed anchor in New York harbor recently and headed out to sea on a mythical race around the world.

Launching G-E's "Ship Ahoy!" sales contest on electric washers and ironers, the distributors set out on a 10-weeks' voyage in which the winning captain will be awarded a genuine ship's model.

The course of the race was charted by G-E's promotion department at Bridgeport, Conn. Each distributor has been given a quota, and to get his ship past the Narrows and out into the open sea he has to reach 10% of his quota.

Distributors' salesmen each will be sponsored by a girl, and the most successful girl sponsor in each distributor's ship will receive a special prize.

As wind for their "sales," the distributors have at their command a tailor-made dealer campaign, featuring a new "Sales Bag" demonstration kit and G-E's new "Self-Shock" display series.

The home stretch of the race will be highlighted by a window display contest and special activity for National Washer & Ironer Week, Oct. 23-29.

All ships in the race will receive the full blast of a gale in the form of a four-color, double-page spread featuring home laundry equipment in national magazines in November.

CERTIFICATE OF MERIT
ANSUL
SULPHUR DIOXIDE METHYL CHLORIDE
Every Ansul Cylinder Individually Analyzed
★ Again and again the Ansul product is laboratory checked. And again, before it leaves the shipping platform, each cylinder is sampled, analyzed, tagged: This tag is Ansul's certificate of merit—proof of Ansul certified quality.
ANSUL CHEMICAL COMPANY • Marinette, Wisconsin
THERE IS AN ANSUL JOBBER NEAR YOU

Dealer Problems To Be Discussed By Electrical Leagues

(Concluded from Page 1, Column 3)
Dealer, "The Domestic End of the Electrical Business," and "1939 Modern Kitchen Bureau Plans," and league managers' sessions cover discussions of sales training courses and their value, activities of salesmen's organizations, how dealer organizations can combat price-cutting, and the promotion of appliances in rural areas.

Opening session of the conference, under chairmanship of George R. Conover, league president and managing director of Electrical Association of Philadelphia, will open with an address of welcome by C. K. West, president of the Philadelphia association.

"Industry and Public Benefits to Be Derived from Electrical Industry Cooperation" will be discussed by H. P. Liversidge, president of Philadelphia Electric Co.; "Better Light-Better Sight Program as a Public Relations and Business Builder," by C. A. Eastman of Ebasco Services, Inc.; and "Progress and Probabilities in Mercury, Sodium, Fluorescent, and Bactericidal Lamps, and Where These Can Logically Develop New Business," by S. G. Hibben, director of applied lighting for Westinghouse.

J. E. North, president of the Electrical League of Cleveland, will chair the afternoon session, which will open with a discussion of the importance of adequate wiring by W. E. Sprackling, chairman of National Adequate Wiring Bureau.

Plans for the 1939 Modern Kitchen Bureau and its accomplishments so far will be outlined by G. E. Whitwell of Philadelphia Electric Co., Modern Kitchen Bureau chairman. "Working Under Merchandising Laws" will be discussed by E. B. George of Dun & Bradstreet.

Morning session of the conference's second day will be under the direction of Ralph Neumuller, executive vice president of the Electrical & Gas Association of New York. C. M. Ripley, General Electric Co., will talk on "The Domestic End of the Electrical Business," and D. S. Stopple, Westinghouse Electric & Mfg. Co., will deal with "What the Electrical League Can Do for the Dealer."

The session will close with a discussion of "Service Possibilities of Leagues and Opportunities for League Managers" by Dr. G. W. Allison of Edison Electric Institute.

A. A. Gray, manager of the Electric Association of Chicago, will be in charge of the league managers' session that afternoon, at which general discussion will deal with such subjects as: how are sales training courses conducted, and what interest has been aroused among members of the leagues which have initiated these courses; what the league can do to promote "Sales Mean Jobs"; how leagues are taking advantage of E.H.&F.A. financing of appliance and wiring sales; what leagues have done in formulating codes affecting electrical installations, refrigeration installations, and air-conditioning jobs; and the activities of salesmen's organizations.

At the league managers' session on the morning of Nov. 19, under chairmanship of G. W. Weston, secretary-manager of the Electric Association of Kansas City (Mo.), discussion will cover the following topics; among others:

League influence in selling electrical equipment to federal projects; practical and legal methods for appliance dealers' organizations effective in curtailing ruinous price-cutting competition; effective methods of securing distribution and use of national promotion materials prepared by E.E.I. and Nema in retail outlets; and promoting the sales of electrical appliances in rural areas.

Sales Executive



WALTER L. JEFFREY

Jeffrey Named Asst. Sales Manager of Leonard

(Concluded from Page 1, Column 3)
corporation for nearly nine years in various executive capacities in both the advertising and sales promotion departments.

He joined Kelvinator in 1929 as household sales promotion manager, and later became advertising and sales promotion manager of Leonard. For the last few months he has served as acting director of advertising and sales promotion for Kelvinator.

Steinko Heads Leonard's Advertising & Promotion

DETROIT — Appointment of J. Truman Steinko as advertising and sales promotion manager for Nash-Kelvinator Corp.'s Leonard division has been announced by R. E. Legg, Leonard general sales manager.

For the past several years, Mr. Steinko has been a member of the corporation's advertising and sales promotion staff. He came to the organization in 1934 to head up trade paper publicity, following a year as editor and business manager of the Garden City (Mich.) Herald.

Mr. Steinko left the appliance industry in 1935 to become sales promotion manager for Ray Day Piston Corp. of Detroit, returning early in 1936 to specialize on household appliance sales promotion for Kelvinator and Leonard. He is a graduate of the University of Michigan.

Stewart-Warner To Show 1939 Models at Meeting Nov. 28

(Concluded from Page 1, Column 2)
hotel here Nov. 28 to 30. Attendance of 300 persons, representing 66 distributors, is expected.

Both ranges and refrigerators already are in production, reports John F. Ditzell, sales manager of the household appliance division. The convention is timed for distributors and dealers to catch this year's holiday trade with next year's models, he said.

Advertising and sales promotion programs, and a new finance plan, will be outlined at the meeting by Mr. Ditzell and Frank A. Hiter, vice president in charge of sales.

SAVE 20-40%

Write for details of
Alco's new Small
Capacity "TK"
Thermo Valve

Alco Valve Co. St. Louis, Mo.

Replacement Sales Now Accounting For Fifth Of Refrigerator Total

(Concluded from Page 1, Column 2)
are on a rapid upgrade, the study showed.

Studies of 1938 sales show that as high as 16 to 28% of today's sales are replacements, it is reported. Age alone is not the only reason why automatic refrigerators are being replaced by women, the study says.

Many refrigerators in use today are too small, waste fuel, are inconveniently arranged, are inefficient, unsightly, too noisy, or lack the worthwhile improvements of new refrigerators, it was pointed out.

Revealed in the study is the fact that electric refrigerators ranked third in last year's appliance sales in units, and that the electric refrigerator industry secured more than 74% of the total household refrigerator sales last year. Ice refrigerators obtained 18% of the total, gas refrigerators more than 7%, and the kerosene refrigerator the small remaining percentage of sales.

Discussing the market for refrigerators, the report points out that while practically all the high-income homes have some sort of automatic refrigerator, not all the middle-income homes have yet purchased units, and that both high-income and middle-income homes are replacement prospects.

Low-income wage-earning families, for the most part, are prospects only

for used or second-hand refrigerators, says the report.

Decline in 1938 refrigerator sales is attributed by the study to lack of sufficient selling to the housewife, and to the industry's failure to make full use of the proven, tested appeals that successfully sold the bulk of household refrigerators in the past.

Nema Makes Plans To Continue Sales Drives

CHICAGO—Further intensification of its "low cost of operation" theme and continuance of its cooperation with Modern Kitchen Bureau was planned by the Electric Range Section of National Electrical Manufacturers Association at its meeting during the Nema convention here recently, reports Bruce R. Fleming, executive secretary of the range and refrigerator sections.

Thomas Evans of Merchant & Evans was re-elected president of the Refrigeration Division and the Household Refrigeration Section of the association; and Harry J. Maugher of Edison General Electric Appliance Co., Inc., was re-elected head of the Electric Range Section.

Claude Hendon of General Electric Co. was re-elected chairman of the Domestic Appliance Section.

Discussed as an important part of next year's merchandising picture was the matter of promotional cooperation not only between manufacturers themselves, but between distributors and dealers also.

Electric iron sales effort will be directed at the replacement market, it was reported, a field somewhat neglected, some manufacturers feel.

Word 'Radio' Is Dropped From Crosley Corp. Name

CINCINNATI—Effective immediately, Crosley has dropped the word "Radio" from its official trade name, president Powel Crosley, Jr. announced last week. In the future, the company will be known as the Crosley Corp.

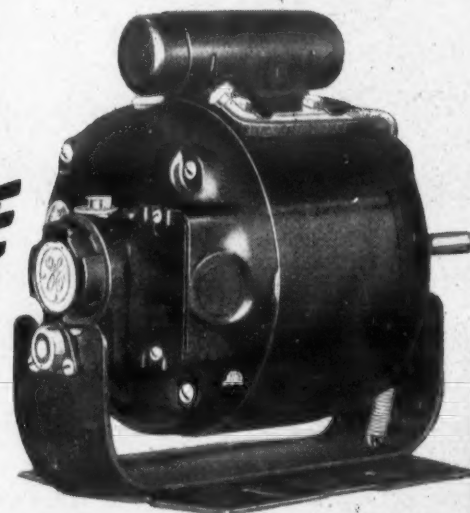
Change in name will not mean a change in the activities of the company insofar as its radio manufacturing operations are concerned, Mr. Crosley emphasized. No change in the financial setup of the corporation has been made, he stated.

In 1924, the original name of the organization was the Precision Equipment Co., which was changed to the Crosley Radio Corp. This last organization then absorbed the manufacturing activities of the Crosley Mfg. Co., both companies prior to that time having produced radio receiving sets. Crosley Radio Corp. also engaged in radio broadcasting.

The company entered the electric refrigerator field in January, 1932, and in more recent years has expanded its activities to washing machines, electric and gas ranges, and other products.

Since the production of electric refrigerators and other diversified products, the management has felt that the word "Radio" in the corporate name was rather limiting, in the minds of the public, as to the activities of the corporation, Mr. Crosley said. Initial steps to eliminate the word "Radio" from the company's name were taken some months ago.

THE MOTOR WITH A DOUBLE SALES PUNCH



HELPS CONVINCE . . . MAKES THE FIRST SALE EASIER



G-E MOTORS help you convince prospects that your appliances are the right ones to buy. They often give that final punch needed to close the sale. Here is how it works: A prospect for a refrigerator, for example, checks over the various other important features of the unit and comes to the electric equipment. She realizes that it is important, but appearance is no criterion to her of its worth. She must rely on the reputation of the electric-equipment manufacturer.

Here is where G-E motors do you a real, practical service. General Electric has been making dependable appliance motors since the beginning of the appliance industry and has a widespread reputation for outstandingly high-quality electric equipment. Add this to that of the appliance manufacturer, and you have a sales combination that will keep the cash register busy.

GIVES SERVICE THAT MAKES FRIENDS . . . AND MORE SALES



AN APPLIANCE business, to thrive year after year, must look beyond the initial sale. Your appliances must give trouble-free service that will make your present customers your salesmen in their community—Mrs. Jones tells Mrs. Smith how well she likes the refrigerator she purchased from the appliance store upstreet.

G-E motors are built to support your claim that you sell dependable appliances. For example, the cast-aluminum rotor winding cannot become open-circuited or burn out. Bearings are extra-long-lived and require oiling but once a year. Refrigerator motors are available with the automatic belt-tightener base that prolongs belt and bearing life. And G-E motors are quiet—they are carefully balanced and are available with rubber mounting. General Electric, Schenectady, N. Y.

GENERAL ELECTRIC

Filing No. 8260

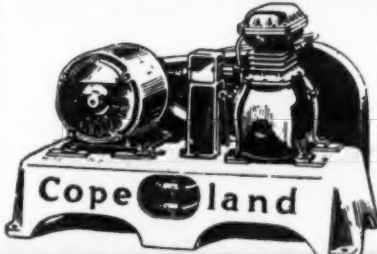
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Build Both PROFITS and PRESTIGE with Copeland

Commercial Refrigeration

There's a double satisfaction in selling Copeland Commercial Refrigeration. First, of course, is the extra PROFIT offered by this quality-line. And second, there's the satisfaction of knowing that every Copeland you sell adds to your reputation and prestige.

Write today for FULL FACTS about Copeland's profit opportunity.



COPELAND REFRIGERATION CORPORATION, Sidney, Ohio

Contest Sponsored By Imperial Brass Co. Stirs Service Men's Interest In Their Craft

J. J. Kline of Springfield, Ill. Demonstrates His Craftsmanship By Taking First Prize In a Tube-Bending Contest In Which Winners Were Determined By the Speed and Skill With Which the Job Was Done



(Left) The model for the design which the contestants in the tube-bending contest were to construct was mounted on a blackboard for all contestants and spectators to see. That's C. P. Payson of the C. P. Payson Co., Springfield, Mass., at the left. He was one of the judges in the contest. At the right of the board is C. H. Benson of the Imperial Brass Mfg. Co., the company that sponsored the contest. The first tube-bending contest for service engineers was held by H. W. Small, a refrigeration parts and supplies jobber in St. Paul. The story and picture about the original contest as published in *Air Conditioning & Refrigeration News* stirred up so much interest that a number of other contests were sponsored by local chapters, and it was decided to hold a championship affair at the national convention. (Center) The contest gets under way. The men competing got right down on the floor to do the job. They were judged both on the speed with which they completed the job, and the quality of the work. (Right) The spectators worked almost as hard as the contestants. They were highly partisan, too.



(Left) The crowd stood on chairs or whatever was handy in order to get a view of the proceedings. The contestant here is J. Barbagallo of Pittsburgh, who did an excellent job, but who lost out because he happened to use the wrong scale on a "weighted" rule, and therefore his dimensions weren't as specified. (Center) W. C. Metcalf, the Illinois champ, had one of the fastest times of any contestant. The big Illinois delegation was cheering him on. (Right) One of the contestants (we think it is Don Matheson of Washington, D. C.) uses a modern tool for tube cutting.



(Left) The timekeeper gives the elapsed time to the judges as contestant J. J. Kline (in shirtsleeves) of Springfield, Ill. (who eventually won the competition) turns in the finished product. Standing against the background of flags is Refrigeration News staff reporter Al Jones, keeping a close tab on the proceedings. (Center) The judges go into a huddle. (Right) Seated are judges George D. Clarke of the Square D Co., Charles P. Payson, and Paul Reed of Servel, Inc., who took plenty of time in making careful deliberations before they named the prize winners. Here they compare the several contestants' efforts with the original model provided by the Imperial Brass Mfg. Co.



(Left) "The Winnah!" J. J. Kline of Springfield, Ill., proudly holds up his model. He won a fitted kit of tools worth more than \$50. (Center) Second prize went to E. C. Fix of St. Louis, shown here just after he had received his prize from "Mac" McIntosh (left) of Imperial Brass Mfg. Co. (Right) R. Preamer of Columbus, Ohio, took the longest time to finish, but was awarded third prize, because his product matched the model perfectly. He took the time to do a perfect job.

Profitable Sales Ideas

Modern Methods of Sales Promotion Can Lower Prices & Up Sales By Cutting 'Waste' In Distribution, Aspley Says

WASHINGTON, D. C.—It is the task of modern sales promotion to take up the lost motion in our present system of distribution and bring down the cost of moving goods from the factory into the channels of consumption, declared John Cameron Aspley, president of the Dartnell Corp., Chicago, in an address presented before the recent Seventh International Management Congress here.

The present system of distribution, Mr. Aspley said, is criticized for involving sales wastes which needlessly add to the price the consumer must pay for goods. Contributing factors to this high cost of selling are multiplicity of salesmen, destructive competitive methods, high-pressure selling, and too high a percentage of ineffectual sales calls.

To bring about this necessary reduction of distribution costs, Mr. Aspley suggested, greater use should be made of the modern methods of sales promotion.

'EDUCATIONAL PROCESS'

Mr. Aspley defined modern sales promotion as an educational process which begins where mass advertising leaves off, and stops where personal selling begins.

It has three primary objectives: to locate and create new markets for a product to make mass production possible, to concentrate sales among fewer customers by making present customers more successful, and to increase sales call efficiency and reduce lost motion in personal selling.

By doing these three things, said Mr. Aspley, modern sales promotion actually cuts the cost of selling, makes lower prices to the consumer possible, and thus raises the standard of living.

UNDERGONE CHANGES

"There is probably no instrument of marketing which has undergone such radical changes, both as to usage and technique, as what we loosely think of as 'sales promotion,'" Mr. Aspley told the conference.

"In the beginning, sales promotion was an appendage to advertising. It defined such routine operations as answering inquiries, preparing the sales bulletin, and putting displays in dealers' stores.

"But those days have gone—gone with the wind. National advertising is still a powerful force for influencing consumer acceptance. But it no longer gives the dealer chills and fevers."

Modern sales promotion has grown up to take its rightful, important role in today's scheme of merchandise distribution, Mr. Aspley pointed out.

IS CONNECTING LINK

In its broad, modern sense, sales promotion is the connecting link between mass acceptance for a product or service, created through advertising, and the securing of the order by the salesman, said Mr. Aspley.

The speaker explained that the applications of modern sales promotional methods necessarily must differ, as the sales problems of various types of businesses differ, but the sales promotional activities of all companies should have one common foundation, one common purpose, and that is to make it easier for people to buy a product.

"The better the job it does in that connection," Mr. Aspley declared, "the less it will cost to market the products and the more value can be given the customer. That greater value, in turn, will cut sales resistance further and increase sales volume and profits."

"One of the most constructive forms which modern sales promotion has taken is creating new markets for a product. A good example is the traveling 'Parade of Progress' instituted by one of the largest manufacturers of automobiles—a cavalcade of trucks which toured the

country and brought to millions of small-town people a new appreciation of modern conveniences in the home and on the farm.

"This pageant compared favorably with any circus. When the caravan got on the lot, two or three trucks were telescoped together in such a way as to permit a stream of pop-eyed natives to go through them."

"They saw, side by side, for example, the kitchen of grandmother's day and the kitchen of today. It made all who saw it want the kitchen of today. It made them dissatisfied with their old-fashioned ice box, with their antiquated coal stoves, back-breaking laundry methods. It created the want which must be the first step to every sale."

A NEW MARKET

"And the thousands of people who were thus made to want the better things became a new market for those things, not merely the home appliances, the Diesel engines, and the automobiles made by this company, but the products made by other manufacturers as well."

"More and more companies now realize that their best bet for increased sales volume lies not so much in adding new dealers as it does in helping present dealers to do a better selling job. And those manufacturers who follow this policy are eventually able to concentrate their distribution in the hands of strong, successful retailers, who can be depended upon to put real sales effort behind a product, who will pay their bills, and who are financially able to carry on through a depression or a recession."

SALES TRAINING

"This sound and fundamental use for sales promotional effort usually takes the form of sales training programs for dealers and their clerks, store displays, advertising cooperation, credit cooperation, and helping customers in every way possible to be better merchants."

"Another beckoning field of opportunity for modern sales promotion lies in multiplying sales call efficiency. It is an established fact, proved by numerous tests, that under present conditions the average salesman spends less than 20% of his time face to face with prospects."

"It is also a fact that approximately one half of the time thus spent by salesmen is given over to creating confidence and establishing acceptance for both the company and the product."

'GLARING LOSS'

"Here we have a glaring loss of efficiency. It equals approximately 90% of the direct selling cost. It is a tax on buyers of millions of dollars annually. The right sort of sales promotional effort, intelligently directed, can do much to reduce that waste and to make the efforts of salesmen more productive."

Use of "door openers" and similar sales promotion helps was highly recommended by Mr. Aspley for reducing sales resistance.

In concluding his talk, Mr. Aspley pointed out that many sales promotional ventures fail because they are not sufficiently practical.

"More testing of sales promotional plans and materials should be done in the field before they are adopted," he advised. "The best sales promotional program ever devised is money wasted unless it meets the field test."

"It is not only necessary to fit the plan to the practical needs of those to whom it must appeal, but it must be sufficiently flexible so that it can be quickly adapted to the changing moods of buyers, and changing conditions in business."

"With that word of caution, it is the well-considered opinion of many of the foremost marketing men of today that sales promotion, which started as the tail on the advertising dog, is destined to wag the dog."

Range Salesmen Stage Touchdown Drive In Campaign

SPRINGFIELD, Mass.—Spinners, line bucks, fumbles, passes, end runs, and touchdowns all figure prominently in the seven-week electric range sales contest being sponsored by United Electric Light Co. among its various range dealers.

The contest is in the form of a football game, with the 55 participating dealer salesmen divided into two teams, "Harvard" and "Yale." Salesmen work for personal reward as well as for team advancement, a special cash bonus being paid for each range sold during the campaign, and an extra prize for the first one sold. All salesmen selling seven or more ranges will be awarded a trip to New York City.

To dramatize the "game" a grid-iron has been laid out on paper, and a miniature ball has been provided. This ball is moved back and forth between the two goals according to the plays or penalties indicated by a "wheel of fortune." Each range sale made entitles the salesman to one spin on this wheel, the result being credited to his team.

Each bona fide prospect uncovered also is good for one spin, providing that the prospect is new, and providing the salesman calls on his prospect accompanied by a contact man from the utility.

Records will be kept of the time that sales and prospects are recorded, and salesmen will take their spins according to this chronological order. The wheel lists various types of plays, mistakes, and penalties common in football, giving a definite yardage gain or loss for each as follows:

Play	Yards Gained	Yards Lost
Line drive	6	..
Spinner	10	..
Off side	..	10
Forward pass	25	..
Center rush	4	..
Lateral pass	7	..
Intercepted pass	..	17
Left end run	12	..
Reverse	15	..
Statue of Liberty	17	..
Line drive	5	..
Right end run	18	..
Fumble	..	12
Holding	..	5
Touchdown	six points	..
Goal kick	one point	..

After each touchdown is scored, the ball is returned to the center of the field. Should the game end in a tie, the team having the ball in its opponent's territory wins. Prize for the winning team will be a banquet at Hotel Highland.

During the contest, the utility is issuing bulletins to the salesmen-players, keeping them informed of the progress of the game. The company also issues special advertising pieces for use by cooperating dealers in local newspapers.

Carolina Utility Employees Receive Bonuses In 2 Holiday Campaigns

RALEIGH, N. C.—Capping its "1938 Why Wait" program with two seasonal sales activities—Thanksgiving Jubilee (Nov. 1 through 23) and Christmas Jamboree (Nov. 25 through Dec. 24)—Carolina Power & Light Co. is spurring its employees on with a series of special bonus inducements.

Each month every salesman who exceeds his quota in domestic refrigeration will be paid a bonus of \$1 for each plus-quota sale. A bonus of \$5 will be paid for each sale of an electric range by company or dealer, providing the range sold replaces an electric range five or more years old and providing the prospect card shows the salesman has priority.

Water heater sales also will be rewarded by \$5 bonuses, when the heaters sold replace side-arm or instantaneous automatic electric models and when the sales are properly covered by prospect cards.

Utility and dealer quotas for the period total as follows: refrigerators, 500; ranges, 600; water heaters, 200. The utility's commercial campaign for this period will cover commercial refrigeration, cooking and heating, and air conditioning.

Both seasonal sales drives will be supported with sales promotion and advertising aimed directly at the holiday market, these promotional aids to include newspaper advertisements, reprints, and direct mail.

Refrigerator Saves Family \$160 a Year, 'Proving Kitchen' Hostesses Report

MANSFIELD, Ohio—Latest notable reports made to Westinghouse headquarters here by hostesses of 102 "Proving Kitchens" throughout the country show an average saving of \$160.68 per year through use of an electric refrigerator, with average monthly operating costs of between 60 and 80 cents, depending upon local rates, under normal use.

The "proving kitchens" were set up in 1937 by Westinghouse, to determine what happened after the refrigerators were sold to the purchaser. Homes of various types were chosen, varying in number of people in the family, approximate income, and size of refrigerator.

A test panel records current consumption, operating time, temperature of kitchen, milk compartment, and food compartment; and an automatic counter records number of times the door is opened.

Continued in 1938, there are now more than 2,000 "proving kitchens," located in every section of the U. S. and in foreign countries of different climatic conditions.

Results compiled show that the average number of persons in the "proving kitchen" family is slightly above four, closely approximating the national average. Average monthly expenditure for food is \$54; average monthly saving reported was \$10.88, bringing the average food expenditure per family down to \$43.12.

Average monthly saving on operating cost of \$2.40 over other types of refrigeration also was reported by the "proving kitchen" hostesses. Totaled, this brings the total yearly savings by use of an electric refrigerator to \$160.68 to the average "proving kitchen" family.

Average refrigerator size in the "proving kitchens" is about 7 cu. ft., larger than the national average; but housewives report added advantage in the larger size for savings through quantity buying and use of left-overs.

Operating cost of "proving kit-

chen" refrigerators averaged 63 cents per month. This average was obtained from the given electric rate of 3½ cents per kilowatt-hour, slightly below the national rate. Figured at various local rates, this would probably bring the average monthly cost somewhere between 60 and 80 cents per month.

Average current consumption of the refrigerators was 18.9 kwh. per month; average running time was 11.1%. Out of every 12 hours, actual running time of the mechanism was 1½ hours.

Tests made in the kitchens with the "meat keeper," a feature of the 1938 Westinghouse units, showed that steak could be preserved in it for six and a half days, and roasts and other types of meat for six days, on the average.

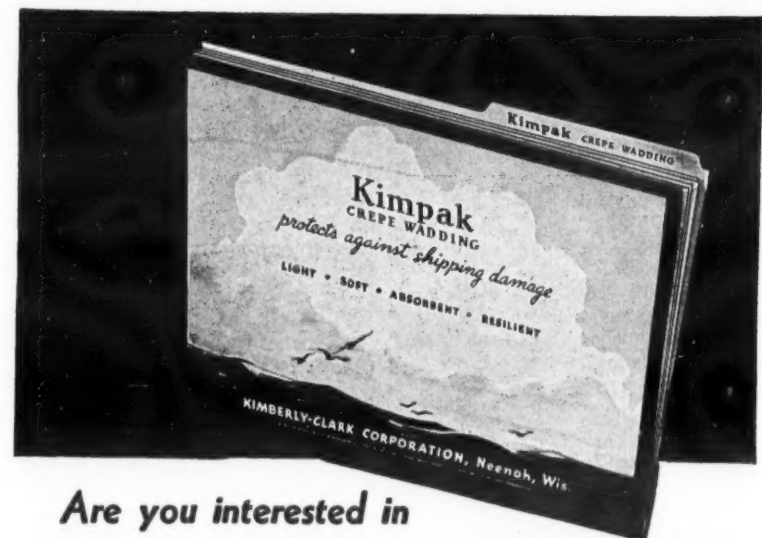
Records of "proving kitchen" test results on refrigerators have been compiled in a "Family Album" which is on display at Westinghouse dealers' stores.

Baker Advises Keeping Bread In Refrigerator

CINCINNATI—A Cincinnati baker increases his sales of bread to families that use small quantities by telling them to keep it in their electric refrigerators, reports D. J. Butler of the refrigeration division of Crosley Radio Corp.

This baker, when soliciting sales of bread, was told in many cases that because there were only two or three people in the family and they ate little bread, it spoiled before a loaf was used.

"You have an electric refrigerator, haven't you?" he asks. "You keep other food in it—why don't you keep your bread in it?" The baker has added a lot of customers for his products by this simple suggestion, it is said.



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Locker Storages

Locker Storage Lightens Housework, Effects Substantial Savings

KNOXVILLE, Tenn.—Why a food locker plant is economically justified, and what kind of plant is necessary to be successful, was discussed by W. E. Guest, consulting engineer of Chicago who has specialized in locker plants, in a talk before the Food Conference held here last week.

"Two reasons, one as much as the other, account for the growing popularity of the locker plant: it has lightened the housewife's home work or enabled her to serve better foods for the same effort, and it has effected substantial savings," asserted Mr. Guest.

LIMITED SERVICE PLANTS

"The limited service plant provides only cold storage service. They were the first development when lockers were put in as side lines in connection with creameries, meat markets, and cheese factories in the northwest, as a convenience to farmer patrons in holding meat in hot weather. The plants did not assume any responsibility as to proper wrapping, sanitation, or any service other than renting lockers.

"Sometimes, as an added service, a custom butcher stayed at the plant and received his pay direct from the locker patron. In some plants, the butcher is employed and the cutting and butchering charges are paid to the plant.

"Whether such plants are operated as independent businesses or attached to some other business, they cannot operate with sufficient profit even to pay interest on the investment," Mr. Guest charged.

"Most of them have been sold by some machinery, insulation, or locker manufacturers, whose literature and salesmen often make statements of easy profits, not based on fact."

COMPLETE SERVICE PLANTS

The complete service plant, according to Mr. Guest, contains the following departments:

1. Supply and receiving
2. Meat chilling
3. Meat aging
4. Meat curing
5. Meat smoking
6. Meat cutting and grinding
7. Lard rendering
8. Fruit and vegetable processing
9. Machinery and wash room
10. Sharp freezer
11. Locker room.

"The complete service plant must have every one of these facilities, and every one of these facilities must be adequate to handle a maximum amount of produce for the number of lockers installed," said the speaker.

"The personnel must be trained and experienced in butchering at the farm or plant, inspecting and chilling meat, grinding, curing, smoking, making sausage, rendering lard, cutting, wrapping and freezing meat

and poultry, and complete processing of fruits and vegetables, including grading, washing, blanching, chilling, packaging, and freezing.

REAL 'PACKING PLANTS'

"Such plants are not just locker plants but have rightly been termed 'vest pocket packing plants.'

"With competent management, such plants are profitable investments and serve an economic need of the community. It is this type of plant that is being discussed here in relation to farm and town use."

A survey of the farm situation today emphasizes the need for some remedy, Mr. Guest emphasized, and the locker plants are popular because they are solving some of these problems. One of the chronic problems of the farmer is that he sells his produce at wholesale prices and buys his food requirements at retail.

According to government data cited by Prof. Sleet Bull, professor of animal husbandry at the University of Illinois, "from 1925 to 1930 the farmer received for his live stock 53 to 58 cents for each dollar spent for meat. Then there was a rapid decrease in the farmer's share to 36 cents. So the farmer received only two thirds as much of the consumer's meat dollar during the depression years as he did in the pre-depression period."

RETAIL PRICES

That this condition is not improving is shown by a chart recently published by the Bureau of Economics showing the widening margin between selling prices and living costs.

The Bureau of Agricultural Economics, U. S. Department of Agriculture, has shown in a survey of retail meat markets that the gross margin is about 23%, while the net profit is less than 3%. This survey shows also that the semi-wholesale meat market has a gross margin of about 14% and a net profit of about 3.25%. The survey published by the Bureau of Agricultural Economics, "Price Spreads Between the Farmer and Consumer" is recommended to those interested in making a more complete study of these facts.

A study of these reports shows that profits in any of these steps between the farmer-producer and consumer are not unfairly high, Mr. Guest stated.

FARMER'S PORTION

"But the farmer still only gets one third of the consumer dollar," he continued. "If he sells a hog and then goes to town and buys ham or bacon, he must pay more than three times as much for it as he received for the same meat when he sold it on the farm. If profits are not unfair, then it must be the system is wrong."

"Have we built up a distributing system too costly to maintain? Perhaps not, so far as the city food supply is concerned, but the farmer is justified in questioning these in-between costs to himself. Certainly, most of these are eliminated in the locker plant system."

"When the farmer sells his produce of meat, poultry, or fruits and vegetables through the locker plant to local town people, he gets market price or better and also without deducting hauling, yardage, shrinkage, taxes, or commissions.

"An actual case learned about through the locker plant I have referred to was reported thus in a farm paper:

WHO PROFITS AND WHY

"John Bintlzer topped the heifer market in April. He had one heifer that was off color which he had butchered. He sold some for 18 cents per lb. and some for 20 cents. The heifers he sold in Chicago netted him \$90 a head. The one he sold through the locker plant at the reduced price netted him \$95.

"The town consumer who purchased this meat saved an average of over nine cents per lb. under the local retail chain store prices.

"At the same location, B. G. Wilson has a bed of asparagus that he contracted to sell to the nearby canning factory for six cents per lb. on his farm. When the contract was completed on June 20 last, he brought in several hundred pounds to the locker plant, which was washed, blanched, packaged, and sharp-frozen, and will be held in lockers until winter for a total service charge of eight cents per lb.

FOOD SAVINGS

"This product will compete on the local market with, and is equal in quality to, well known brands selling at 40 cents per lb. retail.

"Frozen peas or corn-on-the-cob at this plant cost the farmer less than 12 cents per lb.—actually less than the cost of canning or canned goods.

"An increasing market for local farm poultry is being established at this plant in packaging 'fresh killed and frozen poultry ready to fry or roast.' The farmer brings it in dressed and drawn—or the plant dresses it—when it is just ready to market, and holds it over the low-price, flush season period.

"It is such economic services as these that are causing the community food storage plants to increase.

"Many of these plants are owned as cooperatives, others by individuals or groups as corporate enterprises, and others are run as a sideline by creameries, ice plants, and other businesses. Whether they are co-operatively owned, or privately owned, 85% of the savings effected by the plant goes to the locker patrons.

"The Illinois Agricultural Association has just published a survey, 'Cold Storage Locker Development in Illinois.' Local units of this organization have built several co-operative locker plants, and this experience is summarized in this survey:

'300 LOCKERS BEST'

"An effort has been made to bring together here the best thought of those persons in Illinois who have had experience with locker plants. In order that locker plants may be set up ready for operation with the fewest possible mistakes, it is necessary, and we would recommend that the services of a competent engineer be obtained. If an individual can be secured to supervise the construction of the plant who has had experience in the construction of other locker plants, that, too, would be helpful. . . .

"Those familiar with locker plant operations report that only fair earnings may be realized on investments from their operations and this can be expected only from plants with a minimum of 300 lockers and with most efficient operation."

Locker Plant Good Load Builder, Utilities Told

MILWAUKEE—Importance of refrigerated locker storage and frozen foods plants in building electric utility power loads in rural communities was emphasized by J. P. Schaezner, assistant director of the Committee on the Relation of Electricity to Agriculture, in an address at the meeting of the commercial and technical divisions of the Wisconsin Utilities Association here Oct. 24 and 25.

Refrigerated locker storage plants, Mr. Schaezner said, are playing "a most important part" in providing fast-frozen meats, fruits, and vegetables in local communities."

Discussing the closely related frozen foods industry, the speaker called attention to a recent statement by a food authority that eventually about one third of all vegetables will be processed in cans, one third taken to the market as fresh, and another third quick frozen.

"Today more than 5,000 retailers are selling more than 75 varieties of frozen fruits, vegetables, meats, poultry, and fish," Mr. Schaezner said. "According to reports, frozen foods comprised 1% of the total retail sales volume in 1937. This was 60% greater than in 1936, and it is predicted that the volume will double this year.

"More than 200 companies are engaged in the commercial freezing and storing of perishable foods. In 1937, the total output was about 370 million pounds. Of this amount 111 million pounds were made up of fruits, and another 69 million pounds of vegetables.

"At this time the industry is practically concentrated in the northwest and several states of the eastern seaboard. Wisconsin has and can produce an excellent quality of peas, sweet corn, wax and green beans, asparagus, spinach, squash, and other vegetables, as well as strawberries, red cherries, raspberries, blueberries, apples, and other fruits.

"Your state has an excellent opportunity to become established in this industry, which has a most favorable promise for the future with consumer markets close at hand."

100 Locker Plants Seen For Illinois By '39

URBANA, Ill.—At least 34 cold storage locker plants are now functioning in Illinois, and as many more are either planned or already under construction, according to a report by H. G. Russell, livestock extension specialist with headquarters at University of Illinois' college of agriculture.

Basing his guess upon present indications, Mr. Russell hazarded the opinion that there probably will be 100 such plants in operation in the state by the first of the year.

"About two-thirds of the plants now operating are privately owned, with the others owned by cooperative groups of various types," he reported. "Most of these plants are set up as independent units, but some are operated in connection with ice and cold storage plants, or dairies and creameries.

"For the most part the plants are setting high standards in construction, in convenience for patrons, and in sanitation, most operators anticipating that the future will bring imposition of stringent sanitary regulations. Some of the newer plants will be quite attractive."

Some of the newer construction and sanitation features mentioned by Mr. Russell include a vestibule between lobby and locker room, separation of chill room into pre-chill room and aging room, use of a pass-in door from cutting to sharp-freeze room, and use of baskets or trays in transferring meat from cutting room to sharp-freeze and locker rooms.

THE COLD CANVASS

By B. T. Umer

(Concluded from Page 1, Column 1) ing through the corridors, he would pick up one of the small, narrow tables that grace the Statler halls and, carrying it along until he reached a room where it sounded like something was happening, he would place the table across the doorway and rap loudly on the door. When the occupants opened the door they found a "customer" in front of his improvised bar. And seeing as how they had the makings, what else could they do?

'Who Am I?'

One of the weirdest convention incidents was experienced by Frank Eversden, Kerotest representative with headquarters in Detroit. Returning to his room in the wee hours of the first morning of the convention he rapped on the door hoping to awaken his roommate:

"Who's there," asked a sleepy and somewhat gruff voice.

"It's me, Frank, let me in," Eversden replied.

"Don't know no Frank, this ain't your room, and gettahn outta here," came the reply.

Bewildered, Mr. Eversden returned to the lobby, and inquired of the room clerk:

"Who am I?"

After making the proper checkup, the clerk assured Eversden that he had been knocking at the right door. Taking no chances, Frank took the room clerk with him on his next journey.

Again a knock at the door brought an unprintable reply in the same disgruntled voice. The door finally opened, but Eversden's roommate denied having said a word! Then only did the solution come—the occupant of the room across the hall had heard the knocking, thought it was on his door, and it was his voice that had floated out into the hallway.

Celebrating Hallowe'en?

We're still wondering where Jim Strachan of Kerotest and John Eldridge of Virginia Smelting Co. got that enormous pumpkin they were toting around Thursday night, and in whose room it was finally deposited sometime in the early hours of Friday morning.

Prime ribber and heartiest laughter at the convention was Ben Scholl of Brunner Mfg. Co. Ben attained another distinction by being the only individual we saw actually working at the convention, being in the process of taking an order when we busted into his room (but maybe we just didn't get around at the right time to see some of the other boys in action).

Light Bulb Into Peach

Jack Ross of Railway & Engineering Specialties, Montreal, Canada, supplies jobber, is no doubt showing many Canadians how to turn a light bulb into a peach, a feat of legerdemain concocted by Dick Townsend and "Lucky Joe" Krall of Detroit Lubricator Co., which astonished Mr. Ross no end.

If you want advice about cameras and picture-taking, just talk to E. A. Vallee, vice president of Automatic Products Co. He has a ready fund of knowledge about the latest types of camera equipment, and he knows almost as much about the art of taking pictures as he does about expansion valves, and that's saying something.

Was it Charlie Eich of Youngstown or A. J. King of Toledo who offered the sage advice, "Your wife can get only so mad, so why not stay a little longer?"

Jack Forbes and Ken Newcum, who have been pretty much in hibernation getting the Superior Valve & Fittings Co. going, have apparently got things pretty well underway, as both were very much in evidence at the convention.

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Evansville, Indiana

Service Engineers Advance Plans For Study Of Dryers, Hermetic Units, Labor Charges

(Concluded from Page 1, Column 5)

Claude A. Brunton, Huntington, W. Va., was elected president of the Refrigeration Service Engineers Society for the coming year.

G. A. Burns, Toronto, Canada, was elected first vice president, and E. A. Plesskott, St. Louis, second vice president.

H. T. McDermott, Chicago, and S. A. Leitner, Kansas City, Mo., were re-elected secretary and treasurer, respectively.

E. Vernon Black, Uniontown, Pa., was chosen sergeant-at-arms, and George H. Clark, Detroit, was re-named chairman of the national educational and examining board.

The society's board of directors for the coming year is composed of C. Buschkopf, Beaver, Wis.; C. P. Eich, Youngstown, Ohio; R. L. Darby, Long Beach, Calif.; Willis Stafford, Aurora, Ill.; and Don B. Schuster, Buffalo.

PLAN ON HERMETICS

A new phase of the society's educational program will be a study plan on the servicing of hermetically sealed units, it was announced.

As outlined by Harry Busby of Chicago, who heads up the new part of the program, the plan is designed to make the service engineer better acquainted with hermetic units.

It will not be an attempt to demonstrate shop rebuilding methods on hermetics, he emphasized, but merely a procedure to describe the fundamentals and to explain what service work can be done on a hermetic.

"Once it has been determined that a hermetically sealed unit is beyond repair in the field, it becomes a re-manufacturing job rather than a field service job," Mr. Busby declared. To carry out this educational program, Mr. Busby has secured a cut-away model of a General Electric Monitor Top unit, which may be opened and completely disassembled in about 5 minutes. This model will be sent around from chapter to chapter together with a prepared lecture explaining its construction and operation.

UNIT LABOR SURVEY

P. B. Reed of Servel, Inc., again made another appeal for assistance from members of the society in the matter of getting information from a unit labor survey. A questionnaire sent out to members on this survey during the past year resulted in only seven replies, he stated.

Purpose of the unit labor survey is an attempt to arrive at some standard method of estimating costs for doing specific jobs (or units of work) such as (1) running so many feet of copper tubing; (2) placing the machine unit in the building, etc., so that service and installation engineers will have some basis to work on in estimating charges for their work.

Declaring that moisture in refrigerating systems is one of the principal causes of service problems, Warren W. Farr of Cleveland delivered a committee report before the service engineers' organization on "Dehydration of Refrigeration Equipment and Systems."

"Some manufacturers do dehydrate their systems, some make a passing stab at it, and others regard it merely as a passing fad," Mr. Farr began.

"It would be highly desirable to have manufacturers of refrigerants,

lubricating oils, and other materials used in refrigerating systems to show on the outside of the packages or the containers the amount of moisture content of their product, or the proper methods of dehydrating it."

Essential elements of dehydrating equipment are that it should be portable, and adaptable to both large and small units, Mr. Farr declared.

ELECTRO DRYER

A new type of dehydrator to be used in drying original equipment before it is put into service was described by Mr. Farr. It is known as the "Electroservice Unit" and is a combination of an electro-dryer and a vacuum pump.

Electrical elements are used in this unit to reactivate (restore the drying power) of the drying agent with which the unit is charged. Air dried in the unit is forced through the system and then purged to the outside atmosphere, thus accomplishing the drying function. (A full description of this unit has been promised for a later issue of the NEWS.)

Don B. Schuster, president of the Niagara Frontier chapter, opened the meeting and introduced the national officers of the society. W. Hall Moss, Memphis, Tenn., president of the national group, took charge of the convention.

After a talk on "The Future of the Air Conditioning Industry" by Willis H. Carrier, chairman of the board of Carrier Corp., the national officers and committee heads presented their reports on R.S.E.S. activities, developments, and progress during the past fiscal year.

Products Exhibited

Thirty companies had display booths at the convention, the exhibits being arranged around an "L" in convention headquarters on the 17th floor.

Aluminum Co. of America displayed ice cube trays, grids, and Activated Alumina.

A practical demonstration of its line of wrought copper fittings was exhibited by American Radiator Co. Refrigerants and lubricating oil featured the Ansul Chemical Co. display.

"AP" controls for refrigerating systems were shown by Automatic Products Co.

Beals, McCarthy & Rogers, Buffalo parts and supplies jobber, displayed Brunner compressors, Williams tools, American Injector valves, Revere tubing, Ranco controls, and V-belts and Capella oil.

Details of the construction of coils were revealed in the exhibit staged by Bush Mfg. Co.

Copeland Refrigeration Corp. presented its complete line of condensing units along with a display of replacement parts.

Water coolers of the fountain and "inverted bottle" types were installed in the Cordley & Hayes booth.

Wide variety of V-belts was on

Men Who Will Lead Service Organization During Coming Year



(Left) Newly elected president of the Refrigeration Service Engineers Society Claude A. Brunton of Huntington, W. Va., addresses the convention following his election. (Center) R. L. Darby of Long Beach, Calif., who probably traveled the longest distance to get to the convention, was elected to the board of directors. (Right) G. A. Burns, Toronto, Canada, was elected first vice president of the service men's organization.

exhibition in the booth of Dayton Rubber Mfg. Co.

Detroit Lubricator Co. displayed its line of thermostatic expansion valves, along with other Detroit refrigeration products.

Featuring the Fedders Mfg. Co. exhibit was a year-around air-conditioning unit. Other products shown included a wide variety of Fedders instruments and parts, and an enlarged version of the "Fedders trouble finder."

"Drierite" in various forms both before and during use in refrigerating systems was shown by W. A. Hammond Drierite Co.

Ammonia valves, forged steel fittings, strainers, and dryers were included in the Henry Valve Co. display.

Imperial Brass Mfg. Co. had a complete array of its valves, fittings, and tools on display in its booth.

Diaphragm packless, pressure, relief, and check valves were demonstrated by Kerotest Mfg. Co.

Tank type ice cream cabinet conversion units, and "cold hold" truck plates formed the display of Kold-Hold Mfg. Co.

Melchior, Armstrong, Dessau Co. played up the location of its various branches, calling attention in particular to the new office recently opened in Albany, N. Y.

A chrome plated display model refrigerating unit was focal point of the Mills Novelty Co. exhibit.

The Minneapolis-Honeywell Regulator Co. booth consisted of a large cabinet with glass display windows in which was housed an exhibit of controls and the application of the new Minneapolis product, the "Polar-tron."

Valves and tubing were the products shown by Mueller Brass Co.

Peerless of America, Inc. exhibited the thermal expansion valve, high dispersion coil, and the various assemblies in which these two products are utilized.

The full line of Penn controls was displayed by Penn Electric Switch Co.

A complete line of controls, featuring the new single dial replacement control, was on view in the booth of Ranco, Inc.

Visitors to the booth of R. & H. Chemicals Dept., E. I. du Pont de Nemours & Co., Inc., had their pictures taken and developed in short order to serve as convention souvenirs.

Root, Neal & Co. exhibited its line of parts, tools, and supplies.

Application of replacement seals was demonstrated by Rotary Seal Co.

A working display of lathes was staged by South Bend Lathe Works, with mechanics operating a lathe to turn out finished jobs.

The Texas Co. had its Capella oils on display to demonstrate their uses.

Cut-away views of compressors, and board displays of compressor parts, were shown by Universal Cooler Corp.

Virginia Smelting Co. had "V-Meth-L" methyl chloride and "Extra Dry Esotoo" sulphur dioxide refrigerant tanks on exhibition, and gave away toy balloons.

Detroit Council Delays Sunday Closing Action

DETROIT — Detroit's Common Council has indefinitely postponed further consideration of two ordinances requested by local retailers' associations providing for closing on Sunday of all stores selling electrical and household appliances, as well as furniture, hardware, and clothing.

Shelving of the measures, which virtually amounts to killing them permanently, followed an acrimonious attack by Councilman John C. Lodge, in which he declared that passage of the ordinances would merely be paving the way for a whole series of "Blue Laws."

Chicago Sales Congress To Be Held Nov. 17

CHICAGO—C. E. Spiegel, director of sales education, Servel, Inc., Evansville, Ind., will be one of the speakers at the Chicago Sales Congress, a meeting of some 500 sales executives to be sponsored Nov. 17 at the Stevens hotel by the Chicago Sales Executives Club in cooperation with the Chicago Association of Commerce and the National Federation of Sales Executives. Mr. Spiegel will discuss "Tools Your Salesmen Need."

Boake Carter, nationally known radio commentator and newspaper columnist, also will speak.

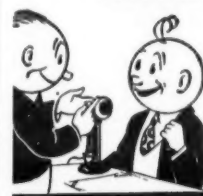
Purpose of the Congress, explained A. E. Blackstone, president of the Chicago Sales Executives Club, is to follow through on the National Salesmen's Crusade.

The Congress is open to all sales executives, whether or not they are members of sponsoring groups.

City Gas Is Fuel

CLAREMORE, Okla.—Gas engines using city gas for fuel furnish refrigeration for the 200-unit cold storage locker plant opened here recently by Ed Lightner.

"Listen Boss—



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U.E.I. Free Placement Bureau will put you in touch with a trained, competent worker. U.E.I. trained men have made good as shop mechanics, installation and service men in this industry for 12 years. This service is Free to you and prospective employee. Try it.

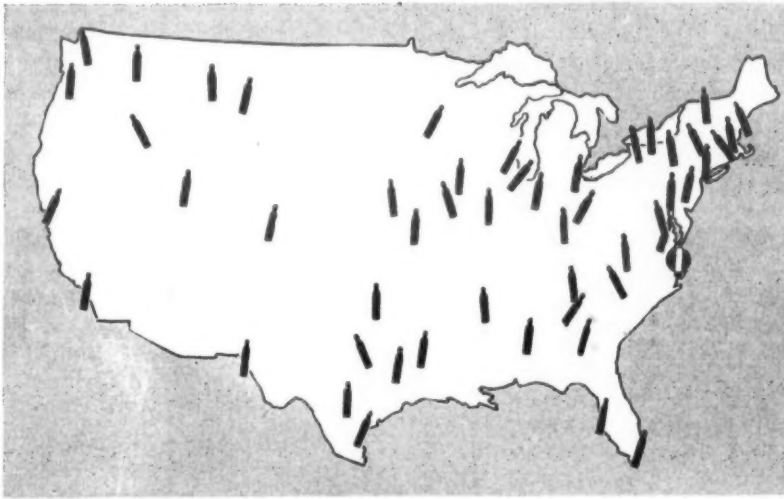
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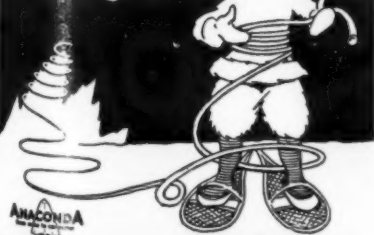
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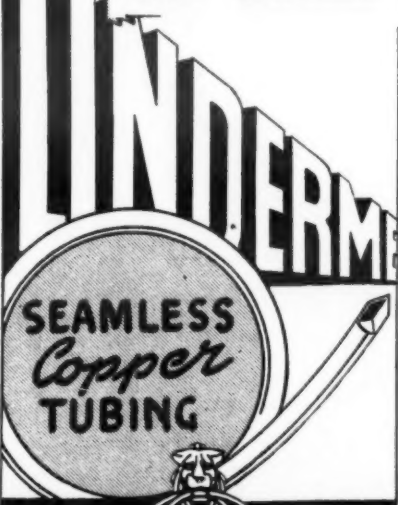
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Intensive Selling Now In Order

SCRUTINY of the distribution
processes is closer and keener
today than ever before. Associa-
tions of merchandisers, government
agencies, economists, all are devot-
ing especial attention to reducing
the spread between price paid to
the producer and price charged
the consumer.

Vague charges of waste in
distribution are being aired by
government officials and spokes-
men for consumers organizations.
Farmers come to town to sell their
produce, and find they pay more
in a restaurant for a fried egg
than they receive for a dozen
choice fresh ones. Muck-raking
writers like Stuart Chase point
out that you can make a gallon of
ink at home for a few cents.
(Question: Who wants to make a
gallon of ink at home?)

On the other side of the debate
are would-be economists who point
out that this great spread between
production costs and retail prices
takes care of a vast army of
citizens, and that if we reduce
distribution margins, we throw
people out of work.

Just who's right and who's
wrong—and how far right or how
far wrong—in these nebulous
debates is a decision that nobody
can arrive at with any great
degree of certainty, even though
we may all have our private
opinions. Threshing out this sub-
ject is a task we leave to the
association meetings, the solemn
conferences, and the debating
societies.

Now Is the Time To Analyze Costs

But it should be noted that now
is a most opportune time for
individual companies to analyze
their own distribution costs, to
study their own selling organiza-
tions, and look for possible wast-
age. What with higher labor costs,
social security charges, rising
taxes, and increased bookkeeping
and legal expenditures, most busi-
ness houses are hard put to it to
show a profit these days.

And if, by more concentrated

sales effort, they can not only
improve their profit possibilities
but reduce retail prices as well,
such concerns will find themselves
in a more advantageous position
in the coming struggle for sales.

Often the NEWS has pointed out
the fallacy of appointing shoe-
string dealers. Those who do
campaign to enfranchise every-
thing from filling stations and
newsstands to shoeshining parlors
work on the theory that the more
outlets they have, the more orders
they will receive. They also talk
about the value of "exposure" of
their products.

Experience of the last few years,
however, has shown that there is
a frightful wastage in the appoint-
ment of such dealers. In the first
place, they seldom last long. They
sell two or three units to friends
at a discount, then discover that
real selling effort is required, get
scared, and dump the remainder of
their stock at whatever it will
bring. Not being good credit men,
a high percentage of their sales
comes back as repossessions.

Good Dealers Are Getting Madder

All this makes it tougher for
the good dealers to do business,
and fans their resentment hot.
Many such have dropped out of
the appliance business this year—
dealers the industry can ill afford
to lose. They say they will come
back if, as, and when some manu-
facturer or distributor offers them
a set-up in which they don't have
to buck fly-by-night competition.

Furthermore, the cost of serv-
icing and training the shoestring
dealers is inordinately high com-
pared with the results they get.
More field men must be hired,
more literature sent out, more
neighborhood newspaper advertis-
ing bought. When the cost of
promotion and training these
"surplus" dealers is set alongside
of the sales they have made, the
picture is not so pretty.

Helping Present Dealers May Be Better Policy

In this connection, John Cam-
eron Aspley, president of the
Dartnell Corp., recently told the
Seventh International Management
Congress that:

"More and more companies now
realize that their best bet for
increased sales volume lies not so
much in adding new dealers as it
does in helping present dealers to
do a better selling job.

"And those manufacturers who
follow this policy are eventually
able to concentrate their distribu-
tion in the hands of strong,
successful retailers, who can be
depended upon to put real sales
effort behind a product, who will
pay their bills, and who are
financially able to carry on through
a depression or a recession." (Mr.
Aspley's address is reported in
full on page 5 of this issue.)

High Mortality Rate Among Shoestringers

High mortality rate of shoe-
string dealers causes a constant
turnover of franchises; and public
confidence in a manufacturer or a
product is not built through fre-
quent dealer changes. Continuity,
the "follow through," is a pre-
requisite for establishing confi-
dence.

If a product is good, if a trade-



mark is to be respected, it should
be associated in the minds of
prospects and customers with
high-grade dealers. Women don't
expect to find good fur coats in
a junk shop, nor do they expect
to find a reliable kitchen appliance
on the premises of a fly-by-night,
cut-rate store.

Instead of racking their brains
and cruising up and down the
streets trying to find new types of
outlets for their products, distribu-
tors and field men might concen-
trate on weeding the duds out of
their present dealer lists, and
replacing them with sound, strong
established dealerships which will
stay in business and which have
proved that they are producers of
sales in volume. And while they're
at it, especial attention should be
paid to keeping the good dealers
they now have.

Commercial Replacements

ENCOURAGING indeed are the
new uses being found for
commercial refrigeration, and the
new types of applications being
developed for the more familiar
uses as well as the new ones.

These new uses and new appli-
cations have been the big news of
1938 in refrigeration, and augur
a wider, more lasting prosperity
for the entire commercial refrig-
eration industry.

Service men who met in Buffalo
last week, however, pointed out
that a market of tremendous
potentialities is now wide open
and begging for attention: the
commercial replacement market.

These men should know, for
they're the ones who see the
commercial equipment now in
operation, and who note its condi-
tion.

Thousands of installations, they
report, have been in use for more
than 10 years. The equipment
gives faulty service, and is expen-
sive to operate. Installations five,
six, and seven years of age can
even be replaced profitably by
their owners, because increased
efficiency of commercial refrigera-
tion systems now available will so
reduce operating costs as to make
it worthwhile for the user to
replace them.

There's the matter of appear-

ance, too, in these days of hot
competition from chains and super-
markets. Chain stores have gone
in for extensive replacement pro-
grams this year, and alert inde-
pendent merchants will want to
keep right in step with such
modernization.

It might be well for every
commercial refrigeration distribu-
tor to instigate a thorough canvass
of all users in his territory, with
the purpose of determining how
many would be good prospects for
a presentation of new equipment
with its increased efficiency, mod-
ern appearance, and reduced oper-
ating costs.

LETTERS

Creamery Package At the Dairy Show

The Creamery Package Mfg. Co.
1243 W. Washington Blvd.
Chicago, Ill.

Nov. 2, 1938

Editor:

This writer was particularly inter-
ested in reading the write-up of the
Dairy Exposition in your Oct. 28
issue.

Could it be possible for your news
gatherer to go through that exhibit
and not have noticed an exhibitor
occupying one of the two largest indi-
vidual company exhibits in which
was included the largest individual
refrigerating machine at the exhibit
consisting of a two cylinder 10 x 10
vertical compressor directly con-
nected to a 125-hp. synchronous
motor, in addition to a 5 x 5 self-con-
tained compressor, a 3 x 3 self-con-
tained compressor, and a 6 x 6 2-
cylinder compressor cut-away in addi-
tion to continuous ice cream freezers,
direct-expansion ammonia batch freez-
er, cold-hold tanks with direct expan-
sion plate cooling units as well as
other machinery, such as; plate type
heat exchangers, a new roll-less
churn, stainless steel pasteurizers of
various designs and capacities, bottle
filling and capping machines, bottle
and can washer machines and
numerous other items?

O. P. HELLER,
Director of Sales Service

Sees Soda Fountain Series as Helpful

Refrigeration and Radio Service
and Installation
321 Bell St.
P. O. Box 975
Ingersoll, Ont.

Sirs:

Kindly quote price on one year's
renewal subscription and one copy of
your manual for licensed refrigerator
operators.

Like the NEWS very much and think
your new articles on soda fountain
and ice cream service will prove very

helpful, am planning to use them as
part of our educational program at
the meetings of Ontario Forest City
Chapter of the R.S.E.S. held at
London, Ontario.

E. H. ALBROUGH

West Coast Jobbers Neglected By Salesmen

California Refrigerator Co.
1077 Mission St., San Francisco, Calif.
Publisher:

We of the California Refrigerator
Co. out on the western coast here
depend on your well-edited magazine
for our information. We congratulate
you on the 40-page edition and the
500th number of AIR CONDITIONING &
REFRIGERATION NEWS for Oct. 19, 1938.
It is really a manual, and we have
instructed all of our force to study
it from this standpoint.

Many eastern people do not realize
the importance of the western coast,
for so few of the manufacturers,
almost all of whom are located east
of the Rocky Mountains, call on the
western trade as much as they should.
Therefore, we all depend on the NEWS
for our information.

CLARENCE F. (SANDY) PRATT,
President

Advertising Agency Commends Sales Manual

Fuller & Smith & Ross, Inc.
1501 Euclid Ave., Cleveland, Ohio
Sirs:

We have at hand a copy of your
publication, "Appliance Selling Today."
There is much to commend in this
study and we would like to obtain
three more copies for our reference
files. You may bill these directly to
this department.

S. W. FROE,
Research Dept.

Better Business Bureau Wants Authentic Data

Scranton Better Business Bureau, Inc.
415 Chamber of Commerce Bldg.
Scranton, Pa.

Editor:

We understand that you recently
published a booklet giving specifica-
tions and suggested retail or list
prices of numerous 1938 models of
household electric refrigerators and
that you have been furnishing copies
of this booklet to interested parties
for a fee of 20 cents.

We feel that this booklet would be
a great aid to us in checking local
refrigerator advertisements. Conse-
quently, we would deeply appreciate
your sending us a copy of the booklet
and we are enclosing 20 cents in
postage stamps to cover the cost of
same.

T. F. LEAHY, Manager.

Keeping Occupied

835 South Park St.
Fairmont, Minn.

Sirs:

My check is enclosed, for which
please send me the following refrig-
eration manuals:

Household Manual No. 3 and 4.
Commercial Manual No. C-1 and C-2.
I intend to get the complete library
eventually, but these four will keep
me occupied for a while I think.
DONALD L. NELSON

Air Conditioning

'Jet' Principle In Air-Distributing Devices Permits Installation In Both High And Low Ceiling Auditoriums

By Henry Knowlton, Jr.

DETROIT—Among the numerous improvements that have been made in air-distribution methods during recent years is the air-mixing ceiling type outlet, which utilizes both primary air flowing through the duct and secondary air taken from the room.

Because of the fact that air from the conditioning system is "tempered" within the units, they have been found suitable for use in theaters having very high ceilings, and at points under balconies where headroom is practically non-existent, the outlets being close to occupants.

With many of the best minds of the industry concentrating on the air-distribution problem, certain successful methods have been developed to meet the situation. Paramount in this classification have been directional-flow grilles, diffusing grilles, slotted grilles for use with high-pressure air on high ceilings, and ceiling plaques of many types.

While all of these air-distributing methods have real advantages under certain conditions, it was difficult to meet high and low ceiling conditions

The venturi outlets are of two distinct types. One is used primarily as a mixing device, found in Anemostat type "B" and type "C" and the Barber-Colman Venturi-flo unit; the second, which acts as an air supply and exhaust grille, is found in the Anemostat type "A" unit. The type "A" device is used where difficulty is encountered in getting return ducts into the structure, particularly in existing buildings.

Type "B" and type "C" Anemostats are equipped with single ducts, while the type "A" is installed with a double duct; one pipe running inside the other.

CALCULATIONS

Successful use of an outlet of this type is based on engineering calculations which take into account the ceiling height, size of space served, desired c.f.m., and sound level attained at the outlet. Manufacturers' catalogues indicate clearly what sound levels can be reached by the units before air noise prevents their use in certain types of structures.

F. J. Kurth, co-inventor of the Anemostat and chief engineer of the company, has given careful instructions to distributors covering the selection of type "B" and type "C" units. Because of the specialized data required to select the type "A" unit, no attempt will be made to cover it here.

SELECTING ANEMOSTAT

Selection of the aspirating Anemostat is made as follows:

1. Determine total c.f.m. needed.
2. Divide space as nearly as possible into squares. The length of the sides of these squares should not exceed four times the ceiling heights.
3. Locate an Anemostat in the center of each square.
4. Determine quantity to be handled by each Anemostat and neck velocities, and then select proper size from capacity chart.
5. Maximum velocity (in neck of unit):
Use up to 1,200 f.p.m. for ceiling height of 7 to 9 ft.
Use up to 1,500 f.p.m. for ceiling heights of 10 to 14 ft.
Use 1,600 f.p.m. or more for ceiling heights of 16 ft. and over.

6. Suggested velocities (based on noise levels):
In film studios, television studios—700 to 900 f.p.m.
Private offices, residences, hotel bedrooms—800 to 1,000 f.p.m.
Hospitals, concert halls, libraries, class rooms—1,000 to 1,200 f.p.m.
Under balconies in theaters—1,200 to 1,500 f.p.m.
Ceiling of theaters, department stores, etc.—1,500 to 1,800 f.p.m.
Other types of buildings—1,800 f.p.m. upwards.

7. Temperature differentials—cooling:
Ceiling heights under 9 ft.—20° F.
Ceiling heights 10 to 15 ft.—30° F.
Ceiling heights over 16 ft.—31° F. and more.

8. Diffusion area is found by multiplying neck diameter in inches times 1.5, giving a result in feet at 1,200 f.p.m. velocity. Example: 10-inch neck diameter times 1.5 equals 15 ft. diffusion area at 1,200 f.p.m. velocity.

9. Selection of unit.

AN EXAMPLE

Example: Room 60 ft. wide, 120 ft. long, 20 ft. high, requires 10,000 c.f.m. Divide room in two squares, each 60 x 60 ft. Two Anemostats needed, each requiring 5,000 c.f.m. at 1,600 f.p.m. Select 24-inch unit. 24 times 1.5 equals 36-ft. radius of diffusion at 1,200 f.p.m.

1,600 times 36 equals 48 ft. of diffusion at 1,600 f.p.m.

"If the maximum diffusion coverage is larger than necessary, the velocity of air at the breathing level will be a few feet higher than normal. Normal velocity at the breathing level would be 10 or 15 ft. away from or toward the unit."

It is obvious from the foregoing data that use of the aspirating type ceiling grille enables the air engineer to design a system with:

1. Smaller ductwork.
2. Higher temperature differentials than normally employed.
3. Fewer air delivery points for adequate air distribution.

WIDELY USED

Anemostats have been widely used in many air-conditioning applications in recent years. Among the prominent installations are: Madison Square Garden; engine room, S.S. Queen Mary; American Radiator Co. auditorium, New York City; American Air Lines offices; and Columbia Broadcasting Co.'s New York studio.

The Barber-Colman Venturi-flo unit is so new that a list of representative installations is not available at this time. Catalogue data on the new unit asserts that it features, "quiet operation, high diffusion efficiency, attractive appearance, wide range of capacities, high rate of internal mixing, rigid construction, and moderate price."

DIFFERENT TYPES

Both the Anemostat and the Venturi-flo units are available with different types of lighting fixtures to meet various decorative requirements.

The Anemostat is sold by 30 sales representatives of the company, located in principal cities, and in Brazil by the General Electric Co. of Brazil.

The Venturi-flo unit is sold by the Barber-Colman Co. and distributed by the national sales organization of Barton D. Wood, Inc. of Detroit.

Individual Cubicles In Infant Institution To Be Conditioned

EVANSTON, Ill.—The Cradle, one of America's best-known institutions for infants, will provide for separate air-conditioned cubicles in its new building, now being constructed. The structure is specially designed to provide every facility for the safeguarding of its charges' health, and will be equipped with an air-conditioning system utilizing nothing but fresh air.

The equipment, consisting of a 25-hp. compressor and water chiller, was specified by the architects, Schmidt, Garden, & Erikson, and purchased for the job by M. J. Corboy Co., contractors, from the Air Conditioning Corp., G-E distributor in Chicago.

The building will be of fireproof construction, and will be equipped to care for three units, or 36 infants, all on one floor. Each baby will be enclosed in a separate glass cubicle. This arrangement will prevent the recirculation of air, and will guard the babies against cross infection from air-borne germs.

The Cradle, which has been operating since 1923 for the purpose of receiving and preparing for adoption under-privileged babies, has always maintained a low mortality rate among the infants. It was discovered that hand-borne cross infections could be eliminated by proper care and nursery technique.

In the original Cradle every precaution was taken to protect the babies against air-borne germs. Even though glass partitions were provided for this purpose, the staff was aware of the danger of an epidemic of respiratory diseases which might result in a tragedy.

Need for an atmosphere free from dangerous germs led to the planning of air-conditioned cubicles.



Air-Conditioned Stores Spotlighted In Illinois Town's Business Drive

OAK PARK, Ill.—"The Coolest Shopping Center in the World!" Thus did this city of 64,000 people, just west of Chicago, advertise itself in metropolitan and local newspapers during a recent civic drive for increased business.

The trade-boosting campaign was held in cooperation with air-conditioning engineering companies which have installed systems in Oak Park stores.

According to the records, there are 45 air-conditioned stores within a few business blocks in downtown Oak Park. Total horsepower capacity of the equipment in these stores is said to be well over 1,600, and it is predicted that by next summer there will be extremely few stores in Oak Park without air-conditioning installations.

COOPERATIVE EFFORTS

The community's general interest and pride in air conditioning has resulted from the cooperative efforts of the chamber of commerce, the Public Service Co. of Northern Illinois, the air-conditioning firms, and the retail merchants themselves.

Oak Park stores do more than \$25,000,000 worth of business a year, it is claimed, and serve about 500,000 shoppers.

The air-conditioning systems in the various stores were installed principally by Westerlin & Campbell Co., Roy M. Moffit & Co., and Midwest Engineering & Equipment Co. Makes of equipment used, as reported by the Public Service company, include A D Co., Airtemp, Augurd-Diceler, Brunswick, Carrier, Frigid-Aire, Frigidaire-Trane, General Electric, Ilg, Kelvinator, Midwest, Pacific, Reliable, Salon, Westinghouse, Wittenmeier, York, and Zephyr-Aire.

Oak Park's air conditioning developed with a rush in 1936 and 1937. Before 1934, there were only seven air-conditioned stores in the community, and five more were completed during that year.

PUBLIC INTEREST BEGINS

In 1935, three more stores were added to the list. Then public interest blossomed out, grand openings and banquets were held after completion of installations in several of the larger stores, and from that time on the number of cooled stores mounted by leaps and bounds.

Early this year, the chamber of commerce decided to stage a concerted advertising campaign with the air-conditioned stores as the principal point.

Newspaper advertisements appeared in the Chicago dailies, and reproductions in poster and window card form were displayed in the Oak Park stores.

Merchants in their own advertising mentioned that their stores were air conditioned, and some included in their advertisements a small reproduction of the community advertisement.

The general report of the merchants after the campaign had got under way was that sales were on the upgrade.

A contributing factor to the success of the drive has been the survey

and advisory service of the Public Service company. The utility's engineers contact merchants, study their air-conditioning needs and store specifications, suggest correct types of equipment and proper methods of installation, and estimate expenses and installation costs.

Although there is no air conditioning and refrigeration section in the Oak Park building code, the utility engineers advise store owners to keep within specifications of the Chicago code in order that probable future regulations may be met.

Because water is one of the major cost considerations, nearly all of the units of 10 or 15 hp. or more are fitted with water conservation equipment.

Two of the stores have their own wells to supply cooling water.

The installation in the Marshall Field & Co. store has the greatest horsepower rating, 466, and the air conditioning is zoned on the different floors.

A new unit being installed in the enlarged S. S. Kresge store has an automatically controlled cooling capacity with a variable-speed motor.

In the Public Service company's retail store and offices, there is a differential type of control on the air-conditioning system, said to be the only one in the area which is automatically controlled in keeping with outdoor temperatures.

Quite a number of the installations have been of the central-station type, with the machinery in the basement and ducts distributing and returning air. Self-contained units are now being installed in many of the smaller stores.

Built-In Duct System Cuts Cost For Church

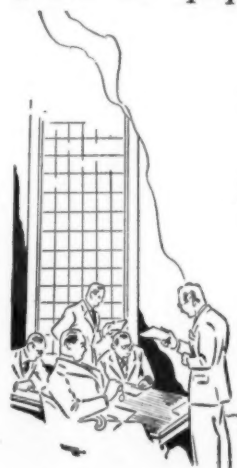
ATLANTA—Foresight and progressiveness upon the part of Atlanta's Baptist congregation finally has resulted in summer air conditioning and winter ventilation of the Second-Ponce de Leon Baptist church.

This church, built in 1935 at a cost of approximately \$300,000 following the merger of three of Atlanta's old Baptist churches, was equipped at the time of construction with an air-circulating duct system making possible complete summer air conditioning.

Until the beginning of this year, however, this duct system (designed by George H. Bond, Atlanta, architect of the church) was used only for ventilation, both in summer and in winter. Heat loss during the winter months was offset by the use of direct radiation concealed along the outer walls of the auditorium.

Equipment for the cooling installation was installed on the first floor of the church. Fresh air is drawn from an inlet in the church's rear wall, mixed with return air from the conditioned area, and then passed through the conditioning units where it is cooled, filtered, and dehumidified. This conditioned air is then circulated through the ductwork to the auditorium and chapel.

"WE CUT OUR SERVICE COSTS When we equipped with BRIDGEPORT BELLOWS"



This statement is typical of the enthusiastic reports we get from manufacturers who are now using Bridgeport Metallic Bellows in their controls.

If you have a problem in automatic controls, investigate Bridgeport Bellows. You'll find them more sensitive, more accurate, less subject to corrosion and usually less expensive than other types. They deliver the accurate, dependable, trouble-free service that contributes to consumer good-will.

Our engineering staff, specialists in the design and manufacture of metal bellows, will be glad to cooperate—on a strictly confidential basis—in designing the bellows which meets your specific requirements.

A booklet on Bridgeport Bellows is yours for the asking. Every engineer should have it. May we send it to you?

Bridgeport knows BELLOWS

BRIDGEPORT THERMOSTAT COMPANY, INC., Bridgeport, Conn.
5-251 General Motors Bldg., Detroit, Michigan 30 North La Salle Street, Chicago, Illinois

Smoke Test



Smoke test showing diffusion and aspiration effect of the Anemostat.

and high and low velocities, particularly in multiple occupancy buildings, with a single type of air outlet.

Two well-known air-distributing devices, which solve many problems of air handling, are now available to the air-conditioning trade. One of these is the "Anemostat," product of Anemostat Corp. of America, New York City; the other is the "Venturi-flo" outlet, manufactured by the Barber-Colman Co. of Rockford, Ill., maker of "Uniflo" grilles.

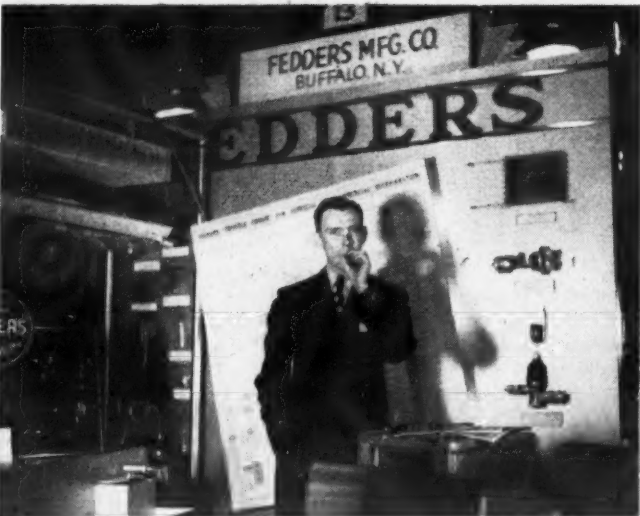
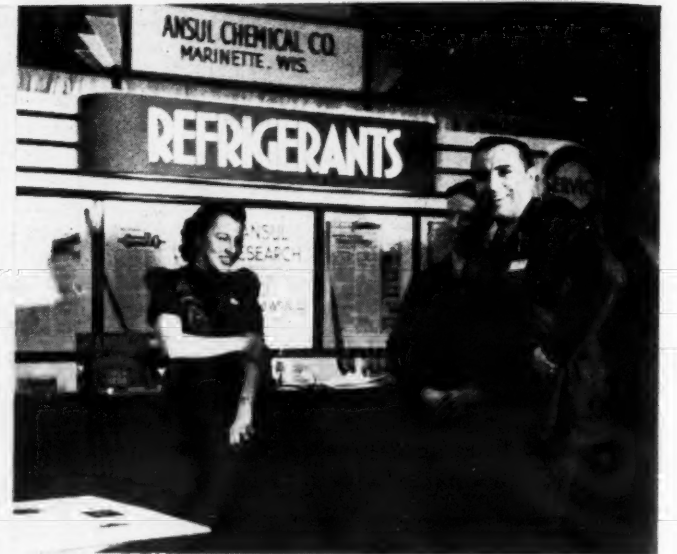
Success of both of these units, which are of the ceiling type, depends on the "venturi principle," which is employed in steam-jet refrigeration systems and at many places in industry. Illustrated briefly: when a small boy waters the lawn, he may drop a leaf or other light object into the flow of water from the nozzle. Before the leaf can actually strike the water, it is carried many feet along the line of flow, by air moving in the same direction.

EMPLOY 'ASPIRATION'

The action of secondary air traveling along the flow of air which comes from an orifice under pressure is commonly termed "aspiration." The principle of aspiration has long been employed in the air-conditioning industry, particularly in room coolers.

Idea of the aspirating outlet is to permit the outlet to handle more air, with a higher differential in temperature. Manufacturers of the devices claim that the ceiling type aspirating outlets will handle from two to five times the amount of secondary air as the amount of primary air supplied to the unit.

Buffalo Visitors and Exhibitors Pictured In Cheerful Mood



Pictures
supplies

Thom

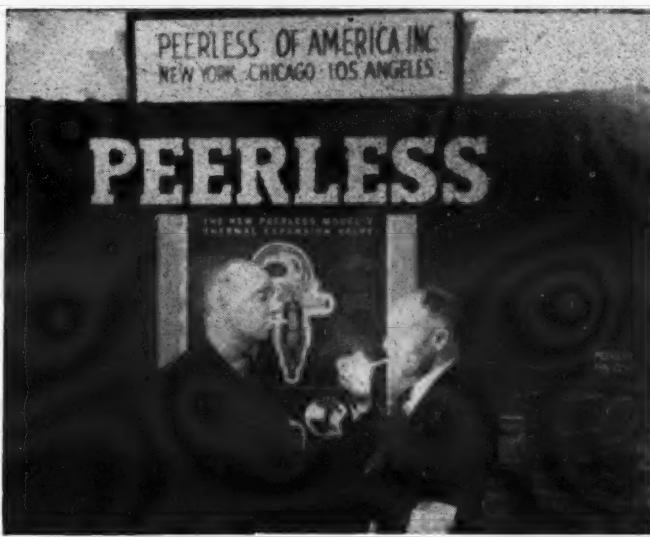
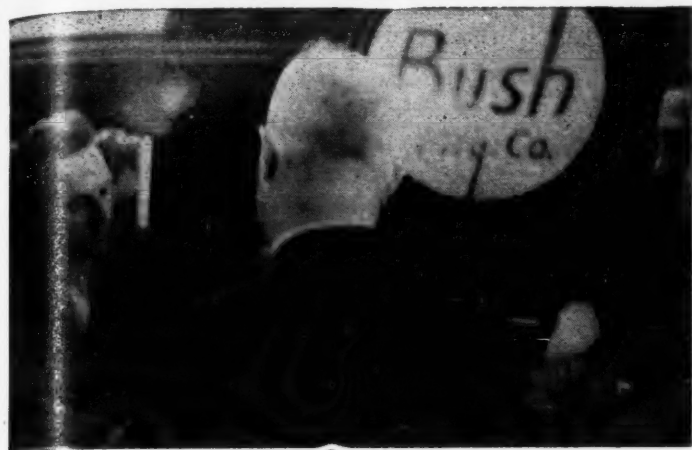
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Manufacturers Show Great Variety of Parts and Supplies To Service Engineers



Pictures on this and the preceding page are presented to show the type of exhibits which manufacturers had at Buffalo, and to remind readers of the scope of the refrigeration parts and supplies business which has become a major factor in the industry. It is the manufacturers represented here, together with numerous others, who will sponsor the First All-Industry Refrigeration and Air Conditioning Exhibition which will be held at the Stevens Hotel in Chicago, Jan. 16-19, 1939.

Thompson Gives General Rules & Methods For Servicing of Hermetic Units

BUFFALO — "Hermetically sealed refrigerating units soon will be in general use in household and commercial refrigeration and in air conditioning, and the refrigeration service man must learn how to service hermetic units in order to meet the coming demand for his services," declared S. R. Thompson, Refrigeration Maintenance Corp., Chicago, in an address before the Refrigeration Service Engineers Society convening here last week.

Very little servicing has been or is done in the field, said Mr. Thompson.

Reports of other papers given at the Service Engineers' meeting will be published later.

son, and consequently there is very little published information available to aid in this work, and the great majority of service men have been unable to learn much about the art of servicing hermetic units.

"The servicing of hermetic units," Mr. Thompson told the society members, "requires more specialized experience, knowledge, and equipment than any branch of the refrigeration servicing field."

"The main difference between servicing hermetically sealed units and open type units is the additional practical experience required, the special equipment needed, and the extreme cleanliness, care, and precision that should be used in the work."

"Obtain as much information as possible about each make of unit in regard to its refrigerant cycle, electrical circuits, type of condenser, chronic troubles (if any), replacement of parts recommendations (some parts, a few years after manufacture, will be replaced with a much better article)."

"Subscribe to a good refrigeration magazine. Trade periodicals, over a period of time, will always cover and explain different service troubles and methods of handling, besides giving information in such a way as to keep building up the reader's knowledge of refrigeration."

"We recommend for the tool kit a Neon test lamp and a Frigidaire special hermetic test cord. General Electric Co. makes an electro-magnet type float lifter that is a good tool to have. This tool is a service device

and not a mechanical device to repair floats from the outside.

"Special hermetic tools are made by several well known tool makers, which are well made and, if used properly, will last a long time. Obtain these from your jobber. There are not many, but each one will simplify an operation. Charging valves are very necessary, and are now being made with adaptors to fit several different makes and models."

"Keep the entire unit clean and clear of dust, dirt, and grease, especially around the condenser, whether it be a forced-air or still-air type."

"One of the most serious troubles with hermetics is to keep the head pressure down to normal pressure, and allow the motor and other parts to carry a normal load."

"Place the cabinet in such a position as to provide ample clearance for air circulation. This is important to all makes using still-air condensers, and these types should not be placed under a shelf, as the air must be allowed to rise vertically up and over the entire cabinet."

"Hermetic refrigerators are lower in horsepower than the conventional unit, and any heat leakage other than normal loss will result in longer running cycles, excessive evaporator frost build-up, and high light bills."

"In outlying districts, be on the watch for low or high voltage, which will result in electrical trouble, especially around the relay circuit. The delicate windings of a hermetic unit can be damaged from wrong voltage."

"All connections on gas lines of hermetics must be tight because of the small amount of gas used, and on vacuum units, air presence is very undesirable because it raises the wattage of the motor, and moisture will also complicate troubles in sticking of vital valves (SO₂), and in methyl and Freon units will clog refrigerant at expansion point."

"An overcharge of oil in the unit will cause trouble in any type of expansion point, due to the fact that liquid oil alone, without refrigerant to carry it along, has a difficult time in passing through. Unless the unit was overcharged with oil at the factory, which is rare, adding of gas will eliminate oil binding."

"Moisture also may plug these, and dehydrators, using a good dryer which won't break down, are recommended."

"An SO₂ system with moisture will show trouble here at an early stage,

and an overhaul and dehydration constitute the best method of correcting the trouble."

"Heating of capillary tubes and restrictors will sometimes expand them enough to permit themselves to clear. Heat them just short of melting the solder joints."

"Condensers are mostly air cooled, and of two types: small in size and finned, through which air is forced by means of a small external motor and fan; large in size, and depending upon a natural circulation of air over or through them."

"Evaporators usually are of the flooded type."

"Do not eliminate or interfere with the action of any protective device placed on the unit by the manufacturer."

"Doing so may cause damage in some form, which will increase the cost of repairing the unit should it be necessary to repair internally."

"The motor windings are very delicate and are first to be damaged when protective devices fail."

"Oil the fan motor. It requires more oil than the average service man thinks, and some require special effort to get the lubrication at the correct point."

"Electrical contact points are small, and if ever dressed down by filing or sanding, be sure they are free of loose filings. It is advisable to replace any poor contacts because filing is usually a temporary repair."

"Be sure all electrical connections are tight and in good condition, as some units have a high amperage on start and closely rated heating overload protector."

"Any stuttering of the electric current, due to a bad contact making the motor start several times in succession, will trip the heater element protector."

"Thermostats are used and are usually of the 'cold control' type."

"The usual hermetic, in good condition, can be kept at a cold cut-out switch setting, and the cut-in comparatively warm (factory setting), the idea being to give the control a wide spread in its differential."

"On the other hand, a unit in poor condition can be nursed along by keeping the cut-out point warmer than usual, and the differential close in its spread, the idea being to give more or less of a short cycle, and still give good refrigeration."

"Some controls are placed on or near the evaporator, which may cause corrosion of the mechanism, sluggish action, electrically charged cabinets, or a closed circuit at this point."

"Average settings are 8 to 13° on cut-out, and 25 to 30° cut-in. Freeze the thermometer to the tray sleeve with water in such a way that readings can be made without moving the thermometer. This gives accurate readings and results."

"Condensers and relays are used to start the unit, overcoming the load of starting."

"Weak condensers are usually reflected in the relay refusing to release. They can be tested easily by putting the terminals against the two line terminals, and then removing the line, and if the condenser is any good, a spark will jump when the two condenser leads are brought together."

"On any occasion when the system is opened for service, be sure all materials, charging lines, etc. are clean and in good condition. Any addition or removal of refrigerant or oil should be done slowly and with care in regard to quantity."

"Add refrigerant through the low side if possible, and take care that

air is not allowed to enter the system because it may trap itself some way internally so that removal is almost impossible."

"On units that have no liquid receiver, most of the refrigerant is stored in the evaporator itself, and when charging, be sure the amount in there is correct."

"Many manufacturers have the thermostat bulb mounted high on the evaporator, and if the refrigerant level doesn't reach the bulb, poor refrigeration will result."

"Do not overcharge the unit, as this will result in refrigerant spilling over into the suction line and frost back; also it cuts compressor capacity."

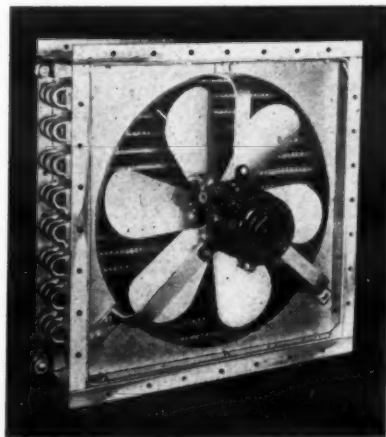
"Use packless shut-off valves when cutting into a line, and after use, leave them on the system, open end capped (providing no charging valve openings are on the unit)."

"Do not use excessive flux in sweating joints, because it may lodge in the restrictor or some vital valve seat."

"On noisy units, the adding of gas and then applying heat to the evaporator will sometimes return enough oil to the compressor to make it run quieter."

"On units where the dome is suspended by means of springs or rubber, make sure it is suspended evenly so it won't touch parts of the frame. New and live rubber parts sometimes help."

Mr. Thompson cautioned the service men that servicing a hermetic unit in the field is at all times a task requiring skill and knowledge, much more so than servicing an open-type unit, and that the work must be done carefully, cleanly, and with the correct tools to be satisfactory.



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Service Methods

Design of the Two-Boiler Creamer Unit, With General Service Instructions

This is the third of a series of articles discussing installation and service problems on soda fountains, ice cream cabinets, counter-type ice cream freezers, and low-temperature display cases.

In this instalment are described hook-ups of boiler-type cooling systems for soda fountains, types of connections usually found and the valves used, the various types of brine tank construction, and settings for the controls. (The series continues in next week's issue.)

By Arch Black and Dean C. Seitz

A creamer unit has been defined as that portion of a soda fountain in which the ice cream storage, the plain and soda water, the bottle storage, and the jar enclosures are refrigerated to the proper temperature.

One of the earliest designs of creamer units was known as the two-boiler creamer unit, and a large majority of the soda fountains in use today are of this general type. Until approximately 1932, sulphur dioxide was used as the standard refrigerant for practically all soda fountain installations.

CREAMER UNIT TEMPERATURES

As a general rule, there are four sections of a creamer unit to be refrigerated:

- (1) The ice cream storage section. In this section, it is desirable to maintain the bulk ice cream, in cans, at a temperature between 6 and 10° F. The packaged ice cream, in bricks or molds, should be maintained somewhat colder, preferably at temperatures between 0 and 5° F.
- (2) The water-cooling section should cool both the plain and soda water so that it may be drawn from the draft arm at a temperature of approximately 40° F.
- (3) The bottle storage compartment, in which both bottled beverages and bottled milk are usually stored, should be maintained between 40 and 50° F.
- (4) The jar enclosure, which ex-

tends across the top of the creamer unit, should be refrigerated to a temperature of approximately 25° F. below the room temperature.

Fig. 1 is a phantom view of a typical two-boiler creamer unit. It should be noted that in the shorter lengths of soda fountains such as 8, 10, and 12 feet, a drain board or work board in which sinks for dish washing are located, is frequently built as an integral part of the creamer unit. In this case, the entire assembly of the creamer unit, the work board, and the exterior counter, is known as the soda fountain. The combination of a creamer unit and a work board without the exterior counter is known as a soda fountain interior.

TYPICAL TWO-BOILER HOOK-UP

Fig. 1 graphically pictures the four refrigerated sections. The most simple type of refrigeration hook-up used in the two-boiler creamer unit is illustrated in Fig. 2.

In this hook-up, one boiler is installed in a brine tank to maintain the proper ice cream storage temperature. A second boiler is installed in a water bath on the opposite end of the creamer unit.

This second boiler freezes a block of ice, between 1 and 2 inches thick, in the sweet water bath. The ice refrigerates the bath which in turn cools both the plain water and soda water as it flows through the cooling coils and cylinders in the bath.

The Four Refrigerated Sections In a Soda Fountain

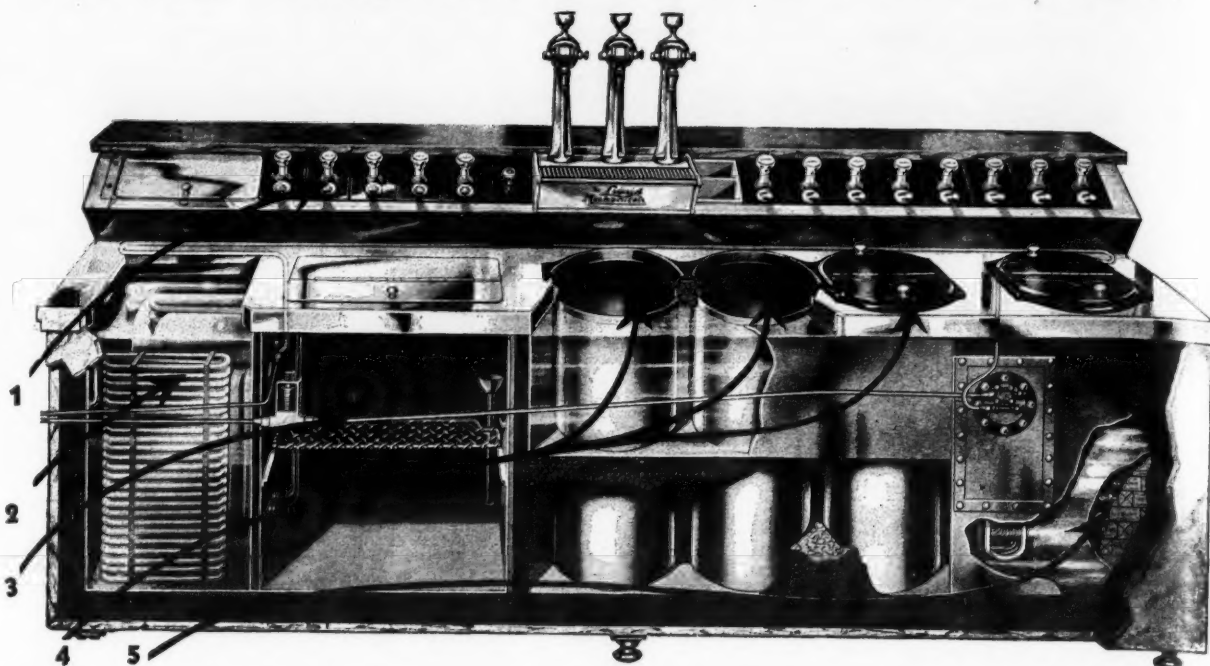


Fig. 1—"Phantom" or "X-Ray" view of a soda fountain, showing the various sections, and the locations of the various cooling mediums. The refrigerated sections, designated by the arrows, are as follows: (1) syrup jar enclosure; (2) water cooling section; (3) bottle storage compartment; (4) and (5) compartment for bulk and packaged ice cream. Location of valves and refrigerant lines can be noted.

The bottle storage compartment is located between the ice cream brine tank and the sweet water bath. It obtains its refrigeration through the insulated wall of the brine tank and through the bare partition of the bath.

In the most simple type of refrigeration hook-up, no auxiliary equipment is used to refrigerate the syrup jar enclosure; in such a case it obtains its refrigeration by the direct contact of its copper lining with the cold brine tank and cold water bath directly below. The variations of this system in which other methods of refrigerating the syrup jar enclosure are used, will follow.

Common liquid and suction lines are used for both boilers. These lines are usually installed by the soda fountain manufacturer and run to the outside of the creamer unit. They may be teed together inside the creamer unit or on the exterior end wall.

PRESSURE REGULATING VALVE

A pressure regulating valve, illustrated by Fig. 3, is connected into the suction line of the sweet water bath boiler. This valve is sometimes

known as a two-temperature valve. It is of the throttle type, and is set to throttle at the minimum suction pressure at which the sweet water bath boiler should operate.

The valve is frequently fitted with three 1/2-inch flare outlet connections. The straight through connection should be connected to the refrigerating machine and the ice cream boiler.

The connection on the tee side of the valve is for the suction line from the sweet water bath boiler. Sulphur dioxide soda fountains of the two-boiler type will require a minimum suction pressure of approximately 2 pounds inside the sweet water bath cooler.

ADJUSTMENT OF REGULATING VALVE

Range of adjustment on the valve stem is usually from 0 pounds to 5 pounds. Using the lower setting will reduce the minimum suction pressure, thereby forming a greater block of ice around the sweet water bath boiler. The adjustment is made by turning the knob or nut on the stem as indicated by the arrow—colder for more ice—warmer for less ice.

Proper adjustment can best be determined by noticing the size of

for he will turn it himself and probably increase the ice formation to the point that damage will result. Invariably the service engineer is blamed for this difficulty, even though he is not responsible.

On systems using Freon-12 as the refrigerant, a similar pressure regulating valve is used. The essential difference is in the tension of the internal spring. With Freon-12, a range of pressure adjustment from 18 to 25 pounds is desirable. The suggested minimum suction pressure for an F-12 sweet water bath coil is approximately 20 pounds.

Again, the best check of the proper pressure is to determine visually the amount of ice, and so regulate the valve that there will be no possibility of a freeze-up.

WATER COOLING CAPACITY

The average capacity for water cooling by means of the cooling coils, and cylinders immersed in a sweet water bath, is approximately 2 gallons per hour with 80° F. inlet water, and 3 gallons per hour with 70° F. inlet water.

A peak capacity for from one to two hours duration of 4 gallons per hour can be obtained with 80° inlet temperature, and a peak capacity of 5 1/2 gallons can be obtained for the same length of time with 70° inlet temperature.

The above capacities are approximately correct for sweet water bath boilers if no means of agitation in the water bath is used. These figures will vary slightly with the size of the water bath and the amount of ice frozen on the boiler. The peak capacity will vary with the storage capacity of the cylinders.

BRINE TANK CONSTRUCTION

Type of brine tank used in the early two-boiler creamer unit is illustrated in Fig. 4. It is made of heavy-gauge copper, and forms a portion of the inside lining of the creamer unit. One side of the tank is cut out to receive the boiler. It is usually mounted on a large removable flange, as illustrated.

Frequently a section of the porcelain or marble facing of the creamer unit is removable so that the service man may have access to the entire boiler flange. If a separate service door is not available, the entire inside facing of the creamer unit may

(Concluded on Page 13, Column 1)

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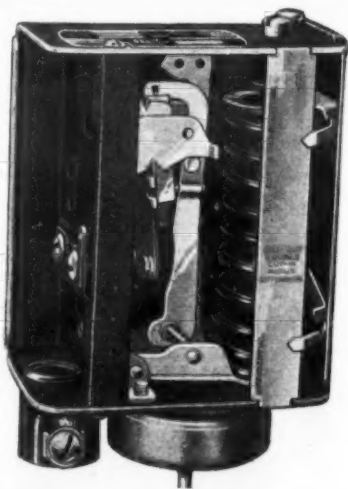
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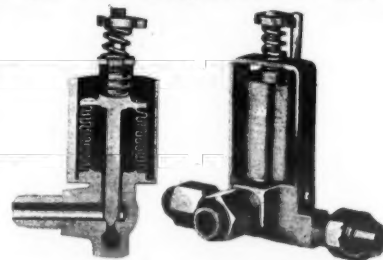
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Fig. 3—Regulator Valve



the ice formation around the sweet water bath boiler. Good practice allows from 1 to 2 inches of ice thickness. In no case should the ice formation be allowed to touch either the cooling coils or the cooling cylinders.

If the coils and cylinders are permitted to freeze, they are very likely to burst and involve the customer in expensive replacements.

It is suggested that the customer should not be informed as to the method of adjustment of this valve,

Fig. 2—Simple Hook-Up For Two-Boiler System

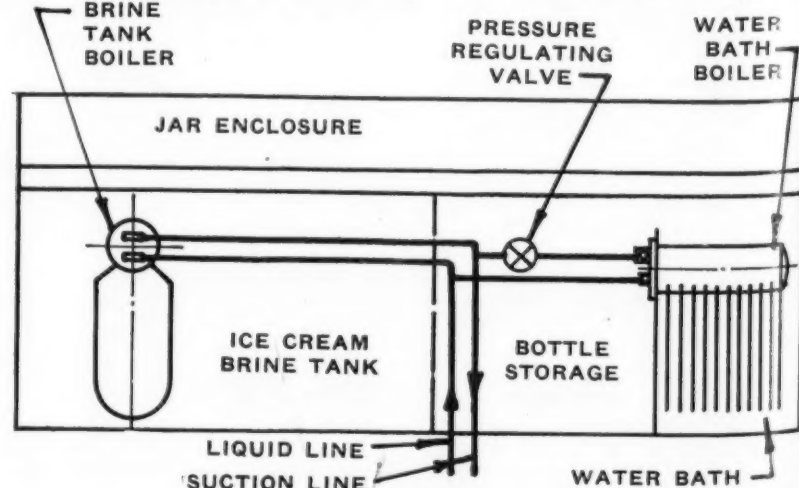


Fig. 4—Where Partition Acts as a Baffle

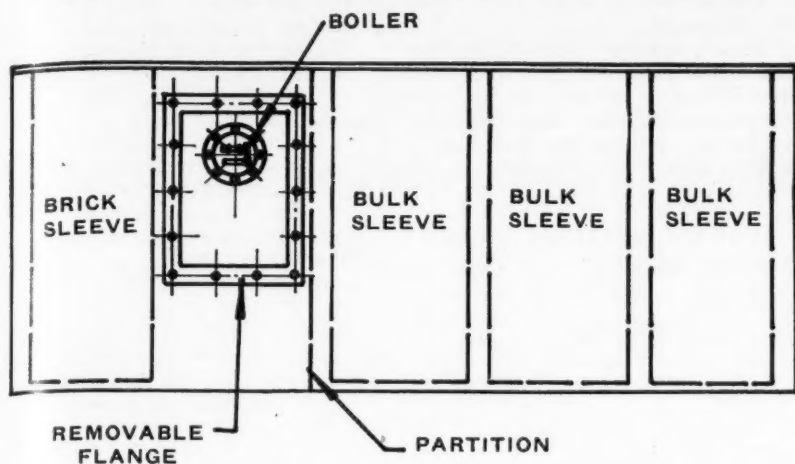
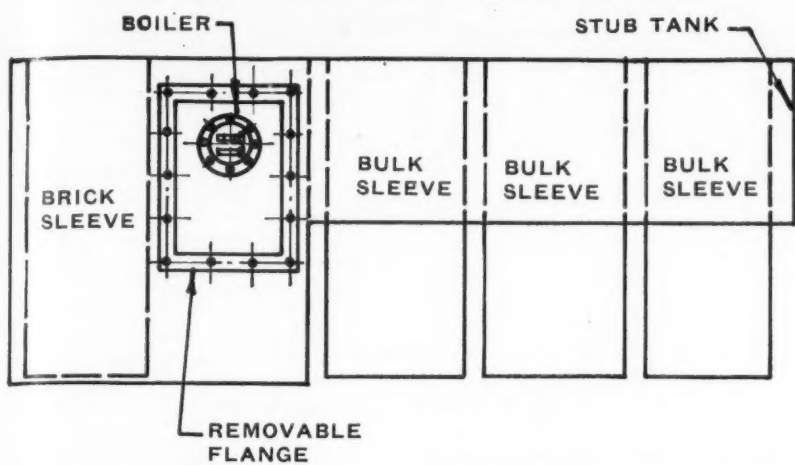


Fig. 5—'Stub-Tank' Construction



Proper Information Necessary To Adjust Pressure Regulator

(Concluded from Page 12, Column 5)

be removed in order to expose the

brine tank boiler.

Inserted from the top into this

tank are several sleeves which re-

ceive the ice cream cans. The sleeves

are usually elliptical in shape. Each

elliptical sleeve will receive two 5-

gallon cans of ice cream. The square

sleeve which is usually supplied, is

always located nearest the boiler,

and is used for the storage of pack-

aged ice cream such as bricks,

eskimoes, frost bites, popsicles, etc.

Frequently the entire tank is

divided into two sections by a metal

partition, illustrated in Fig. 4. This

partition, which acts as a baffle,

assists in producing a colder tem-

perature in the brine tank than in

the bulk side of the partition.

This partition is usually notched

at the corners to permit the free

circulation of brine between the two

sections of the tank. However, the

circulation is impeded because of the

baffle which greatly assists in obtain-

ing the two temperatures desired. A

brine filler hole is provided either

on the top of the creamer unit or

inside the jar enclosure.

STUB-TANK CONSTRUCTION

Fig. 5 illustrates a development in

brine tank construction usually called

"stub-tank." As illustrated the brine

does not surround the lower portion

of the bulk ice cream sleeves. This

construction produces practically uni-

form temperatures from top to

bottom of a 5-gallon ice cream can.

A similar effect may be obtained by

filling the lower portion of a full-

depth brine tank with asphalt or

other insulating material.

LOW-PRESSURE CONTROL SETTINGS

The approximate settings for the

low-pressure control switch on a

sulphur dioxide condensing unit for

a soda fountain using two boilers as

outlined above is as follows: cut-in

pressure, 0 pounds to 2½ pounds;

cut-out pressure, 15 to 16 inches for

a full-depth brine tank, and 17 to

18 inches for a stub brine tank. For

a Freon-12 condensing unit: cut-in

pressure, 17 pounds to 21 pounds;

cut-out pressure for full-depth brine

tank, 2 pounds to 3 pounds; for stub

brine tank, 0 pounds to 1 pound.

(Note: Control settings for other

refrigeration hookups than described

above will follow in later articles.)

After operating for 24 hours, the

fountain temperatures should be

checked. The customer should be

consulted as to the dipping consis-

tency of his ice cream. If it is too

hard, slightly raise the cut-out point not more than ½ pound (1 inch) at one time. If it is too soft, first check to make sure that his ice cream was not delivered in a soft condition.

If it is found that his ice cream was delivered in a satisfactory condition, then slightly lower the cut-out point—approximately ½ pound (1 inch vacuum). An adjustment of the pressure regulating valve should only be made after noting the thickness of the ice formation on the sweet water bath boiler. Remember that each adjustment of the pressure regulating valve will require a corresponding adjustment of the cut-in point of the low-pressure switch.

To compensate for a colder (more ice) adjustment of the pressure regulating valve, the cut-in setting of the low-pressure switch must be lowered (approximately 1 pound at a time).

The service engineer should remember that the sweet water bath boiler pressure starts the condensing unit and that the ice cream brine tank boiler pressure stops it. If the cut-in setting is too high, the length of the idle cycle will be so long that the brine will become too warm.

The length of the idle cycle depends on the cut-in point and the thickness of ice which insulates the water bath boiler. To compensate for an increased ice formation, the cut-in point is lowered. To compensate for a reduced ice formation (warmer setting) the cut-in point is raised.

Kline Is Victorious In Tube-Bending Contest

(See Pictures on Page 4)

BUFFALO—Completing an intricate tube bending project in the record time of 15 minutes and 18 seconds, James J. Kline, refrigeration service man from Springfield, Ill., won a complete service kit valued at about \$50 in a tube bending contest sponsored by Imperial Brass Mfg. Co. at the Fifth Annual Convention of the Refrigeration Service Engineers Society here Nov. 2.

Second prize was won by E. C. Fix of St. Louis, who took 27 minutes and 42 seconds to complete his project, but gained points on the excellence of his work.

R. J. Preamer of Columbus, Ohio turned in a project which was an almost perfect match for the master display job, but had to be content with third place because his time was 30 minutes.

Other contestants in order of elapsed time were: Don Matheson, Washington, D. C.—15.7 minutes; W. E. Metcalf, Joliet, Ill.—16.8 minutes; D. Rose, Warren, Mass.—19.2 minutes; J. Barbagallo, Pittsburgh—

19.6 minutes; H. Spencer, Nashville, Tenn.—20.1 minutes.

Ivar Skipple, Chicago, defaulted after about 10 minutes of futile wrestling with the tube.

Mr. Barbagallo made a near perfect job, but unfortunately used a molder's rule to measure and was an inch and a half out in comparison with the model.

Imperial Brass Mfg. Co. provided the tubing, blue prints, and necessary fittings. Each contestant was required to use his own tools.

Points were figured on time, accuracy, and good workmanship. Rules were that: if a project exceeded in any dimension the plus or minus one inch tolerance allowed, it would be disqualified; each poor flare on tube joint would add 30 seconds to the contestant's elapsed time; marred brass nut or brass fitting would add 15 seconds; loose flare nut would add 15 seconds; each fitting marred would add 15 seconds; kinked or flattened tube would add 60 seconds.

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We are indeed enthusiastic about "Refrigeration News" advertising.

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Methods of Handling Refrigerator Control Complaints Outlined For Service Men

BUFFALO — Basic information about the construction and operation of household refrigerator controls, together with tabulated data on proper settings, and the proper methods of handling common service complaints, were presented by G. E. Graff, sales manager, Ranco, Inc., before the second day's technical session of the annual convention of the Refrigeration Service Engineers Society, held here last week.

All refrigerator controls, Mr. Graff explained, have some form of power element which is responsive to temperature changes to furnish the motive power to operate the switch.

These power elements may consist of:

(a) metallic bellows connected directly to the suction side of the refrigeration system responding to pressure changes of the refrigerant in the system itself;

(b) a power element consisting of a metallic bellows connected by a capillary tube to a bulb and this assembly filled with an expansible vapor. This vapor within the bellows, capillary tube, and bulb, contracts or expands in response to temperature changes and thus provides the necessary power to operate the switch.

The bellows, which is that portion

of the power element which expands and contracts due to the pressure changes of the gas fill, is of metal formed either by a spinning or by a hydraulic process into thin highly flexible convolutions. Bellows are made to the diameter and length required for the particular switch with which they are to be used.

The capillary tube, stated Mr. Graff, is merely a pressure transmission duct connecting the bellows and bulb and is a metal tube usually not more than 1/8-inch outside diameter. The length and diameter of the capillary tube, however, have little effect on the operation of the power element.

Power element bulbs, said the speaker, are made in many sizes and shapes in accordance with the ideas of application engineers, and the power element manufacturers. Some bulbs of recent design are made by winding or twisting part of the capillary tube in either a tight or an open coil.

Purposes of the bulb are to provide large contact area at the spot that is to control the system, and to provide space for vapor condensation.

Power elements are charged with various gases depending upon the temperature range at which they are to be used. This power element

charge has no relation to the gas of the refrigerating system to be controlled. For low temperatures, such as ice cream cabinets, power elements are usually charged with Propane or Freon.

For medium temperatures, such as household refrigerators, the power elements are usually charged with methyl chloride or sulphur dioxide.

For higher temperature applications such as beverage or water coolers, power elements are often charged with sulphur dioxide, isobutane, butane, etc.

At one time some power elements were charged with a measured amount of liquid refrigerant. It was extremely difficult to measure the small quantities of refrigerant used in such charging and the expansion of this charge often exceeded the strength of the bellows when it was subjected to a high temperature and the bellows would be ruptured from the excessive vapor pressure.

HOW TO DETECT LOSSES

"Limited" or "Saturate Vapor" charges are now used wherever the bulb will always be coldest part of power element, declared Mr. Graff. The modern saturate vapor filled power element is charged with vapor only at a temperature above the highest temperature to be controlled. There being no liquid to change to vapor at any higher temperature, the pressure does not continue to increase materially with rising temperatures.

"To determine if a power element has lost all or a portion of its charge," said the speaker, "proceed as follows provided no internal changes have been made in the control from the original factory setting. Be sure that the manual switch is in the 'on' position:

"(A) An entire loss of charge is indicated if, when entire control is warm the contacts remain open when the dial pointer is set in 'cold' position.

"(B) A partial loss of charge is indicated if, when entire control is warm, contacts are open when dial pointer is set in 'defrost' or 'warm' position, but close when the pointer is turned to a 'colder' position.

FIELD REPAIRS IMPRACTICAL

"When there has been either a total or partial loss of the power element charge, replace the entire power element with a new one as field repairs are not practical. Power elements of a given type and fill are interchangeable and their exchange will not alter the settings more than a few degrees.

"General instructions for readjustment of all thermostats are not practical," Mr. Graff declared, "but thermostat manufacturers are usually glad to furnish instruction for any or all of their models.

"In general, we can say that increasing the pressure of the large (or range) spring raises the temperature operating points and the reverse.

"The differential or difference between cut-in and cut-out is adjusted by a separate spring. Many later models have fixed differentials which cannot be changed.

SETTINGS MAY DIFFER

"The temperature setting required for each model refrigerator is carefully worked out by laboratory tests to give the maximum operating efficiency, with proper food compartment temperatures and satisfactory ice freezing.

"With the many different designs and capacities of refrigerating equipment, varied temperature settings and dial ranges have been required. Variations of dial ranges are obtained by use of different combinations of springs and screw threads or cams.

"Often thermostats looking exactly alike are very different in settings and cannot be adjusted to be interchangeable. With thermostats having fixed differentials, the length of running cycle cannot be increased or decreased.

"Dial range 'cold control' is the user's adjustment to obtain faster freezing or vary the box temperature at will. The total number of degrees changed will, of course, vary from the combination of large evaporator and small compressor using a small temperature range, to the combination of a small evaporator and a large compressor requiring a wide temperature range in order to have the correct running time.

"Dial 'defrost' or 'vacation' positions have 'cut-in' temperatures high enough to permit frost melting

during the off period. A refrigerator may have to operate for many hours on this setting in order to complete the defrosting.

"Semi-automatic defrost is positioned manually but the thermostat automatically returns to a normal operation after the evaporator reaches a temperature high enough to have caused one complete defrosting.

AVERAGE SETTINGS SHOWN

"A tabulation of temperature settings used in the past years reveals the following average settings for the various type cooling units:

Application	Cut-Out °F.	Cut-In °F.
Brine tanks, wet or dry system		
Bulb attached to side of tank	17	29
Bulb attached to suction outlet	16	27
Bulb immersed in brine, not touching evaporator	17	25
Bulb immersed in brine, touching evaporator	11	26
Copper evaporator, wet system	14	28
Bulb on frosted tube	14	28
Copper evaporator, dry system		
Bulb on finned dryer	20	40
Bulb on ice tray sleeve	20	28
Bulb on frosted tube	15	28
Porcelain evaporator, wet system (high or low side float or capillary tube)	15	28
Bulb on side	15	30
Bulb on heater	15	30
Porcelain evaporator, dry system	15	28
Bulb on side	15	28
Steel evaporator, plated, wet system		
Bulb on side	12	27
Stainless steel evaporators		
Bulb on side	7	23

"All of these various control settings accomplish the same ultimate result. The cut-in is just below the point at which the evaporator begins to defrost and the cut-out is low enough to give the proper running cycle to cool the refrigerator.

"Thermostats should not change during use and one which is known to be erratic should be replaced, as its repair is a shop operation.

OVERLOAD PROTECTORS

"Hand reset motor overload protectors of the 'solder well' or 'eutectic alloy film' type were formerly incorporated in refrigerator thermostats and bi-metal latch type of motor protectors have also been used to some extent.

"With the solder well type, after functioning of the overload, it is necessary to allow several minutes for the solder to cool and set before reclosing the manual switch on the thermostat.

"Each refrigerator manufacturer determines the load that his motor will safely carry and recommends overload coil ratings accordingly. In the absence of this information you may select overload coil ratings based on 140% of the full load current of the motor, as shown by the name plate.

"The early motor protectors used in thermostats were not 'trip free' but this feature was made on Underwriters' requirements. The 'trip free' feature assures opening of the contacts even if the reset button is held in the 'on' position. The reset button always indicated when the switch was open. Recently these have been superseded by automatic reset type motor protectors attached directly to the motors.

SOME COMMON COMPLAINTS

"When making service calls remember the following common complaints and their causes, and do not make unnecessary thermostat replacements which do not cure the real trouble:

Off-On Switch Does Not Stay in "On" Position

1. Ampere rating of overload coil is too low.
2. Head pressure is too high.
3. Compressor is sticking.
4. Voltage is low.
5. There is motor trouble.

Short Cycle

1. Capillary tube of thermostat touches some point of the chilling unit that is colder than the bulb of the power element.

2. Expansion valve or float valve leaks.
3. Thermostat differential is too short.

Long Cycle

1. Too much frost on chilling unit.
2. Refrigerator compartments are overloaded with warm food.
3. Cabinet is too close to wall for circulation of condensing air.
4. Cabinet door does not fit tightly.
5. Thermostat differential is too wide.

6. Suction shut-off valve is partially closed.

7. Belt slips.

8. Air is in system.

9. Suction discharge valve leaks.

Will Not Cut-In

1. Overload reset button is not pushed in.

2. Bellows is discharged.

3. An open circuit is in the wiring.

Will Not Cut-Out

1. Temperature cut-out point is below the ultimate limit of the refrigerating system or inefficient compressor.

2. Power element bulb is not clamped tightly to chilling unit.

3. Clamp for thermostat bulb is not properly located on chilling unit.

4. Float valve or expansion valve is not operating correctly.

5. Part of the refrigerant is lost.

SMALLER, BUT UNCHANGED

"Since the removal of the motor protector from the thermostat and the adopting of stainless steel for cases, the size of thermostats has been reduced but the fundamentals of operation have not changed. New and more positive action of the toggles is noticeable and nearly all thermostats have silver contacts.

"Mounting screw spacings have generally been 3 1/8 to 3 3/8 inch making general replacement controls practical but there have always been some special types of mountings which require exact replacements.

"Exact replacements require no drilling of new mounting holes, additional materials, or readjustment of the thermostats. They have all the desirable features of the ones replaced, and often additional features.

"A refrigerator service man often wastes his own time if he installs other than exact replacements when those exact replacements are available and the service engineer who familiarizes himself with these controls will save much time for both himself and his customer."

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Industrial Relations

Sales Management More Important Than Compensation Plans, Tosdal Believes

WASHINGTON, D. C.—Compensation plans cannot be used as an effective substitute for management, Harry R. Tosdal, professor of marketing in the Graduate School of Business Administration of Harvard University, told a session of the Seventh International Management Congress here recently.

"The compensation plan cannot be expected to furnish the amount and types of stimulation and the direction of sales activity needed for successful selling operations," he said. "It may contribute, but it cannot perform the whole task."

"The changes which have taken place in compensation plans are largely adjustments, based upon the desire to emphasize one or another of conflicting requirements of incentive, regularity of income for sales force, low fixed expense, low selling cost, and flexibility."

ADJUSTMENTS

"Adjustments which have been made to secure the most desirable combination of elements have resulted in the adoption of incentive elements by those who have used salaries, and of fixed elements by those who have used commission types of payment, outcome being that newer compensation plans appear to resemble each other much more closely than was earlier the case."

"More important than the changes in the compensation plans themselves," said Mr. Tosdal, "have been the changes in sales management surrounding and affecting the performance of salesmen, and therefore the operation of plans of compensation. Such changes are particularly those in market research, market planning, and market control."

Changes in compensation and incentive plans for salesmen which have occurred during the depression have been largely those which could be forecast, if one were to assume a gradual evolution toward better management and better citizenship of the business enterprise, Mr. Tosdal declared.

Desire for security has increased the demand for stable or fixed elements in salesmen's compensation plans, he continued. Changes in business conditions have demon-

strated the inflexibility of many plans, and have caused executives to look around for plans more adaptable to changes.

Low prices and maintained wage scales have emphasized even more the necessity for economy in performing the sales function; and the growing labor consciousness of the salesman, beginning to manifest itself in the unionization of certain classes of sales persons, may further change the emphasis upon particular requirements, the speaker pointed out.

For proper perspective, compensation must be viewed in its relationship to other factors affecting the salesman's work and to other inducements to work well or poorly, Mr. Tosdal said.

Discussing changes in compensation methods and systems, and the attitude of business executives toward such changes, he noted that these were of two general types: 1. Changes made to meet shifts in business conditions; and 2. Changes sought, regardless of business conditions, to find a fully satisfactory plan of compensation.

DEPRESSION REACTIONS

"In periods of depression," he declared, "the employer's urgent need for conserving cash resources and for securing sales volume at profitable prices causes him to emphasize the incentive possibilities of compensation plans, and to favor those plans which contain the minimum of fixed compensation elements."

"On the other hand, the salesman's need for income, and the adverse effects upon the morale of many salesmen of drastically lowered income or of uncertainty of receipt of income impose pressure upon superiors to introduce salary or other constant elements, to prevent demoralization."

"Consequently, in a period of depression, some firms abandon salary plans to adopt incentive plans offering, presumably, greater incentive to performance, while other enterprises drop commission plans, and turn more or less completely to salary plans."

"In periods of prosperity, the need for economy appears less pressing, and executives have been more willing to assume salary burdens. As conditions improve, there is, of course, more opportunity for executives to change compensation plans in one direction or another, as personal preference, and the preference of groups of salesmen, dictate."

PRESENT TRENDS

"Trend in the decisions of sales managers regarding the compensation of salesmen shows a groping toward plans which will more nearly possess the fundamental requirements of good compensation plans. The tendency to consider adequacy of compensation on the only sound basis, which is that of annual income rather than rate of commission, appears to have become stronger."

Business men have been working for generations to develop a compensation plan which would furnish sufficient incentive without bringing with it other undesirable results, Mr. Tosdal said.

"But volume of sales is by no means the only element of satisfactory performance," he pointed out. "Profit, goodwill, special work for the purpose of creating a basis for repeat sales—all of these things enter into the satisfactory performance of salesmen in different lines of business."

"Consequently, in the attempt to furnish incentive for salesmen to do also the other tasks, firms have continued their research for compensation plans which would furnish specific incentive for every form of selling effort. Sometimes plans have emerged which were so complicated as not to be understandable, at least to the salesmen."

Observation of compensation plans since 1930 indicates, the speaker

said, that no such plan is a substitute for management, and that the plan itself is only one of a number of factors affecting sales performance.

More attention is being paid not only to improving the performance of salesmen with the customers and prospects assigned to them, but also to selecting customers and prospects which are more likely to furnish desirable volume of sales and profits, he went on.

Also, more attention is being made to having sales compensation plans more flexible—to effect a compromise between the desires of the company and of the salesmen so that little, if any, change would have to be made in order to adjust compensation to business conditions. Net result has been a more general similarity between all plans of this type.

COMBINATION PLANS

"Most of the plans which show the result of recent thinking appear to be combination plans, containing some element which gives at least nominal stability of income to the salesman, and a variable element of the commission type, to furnish incentive."

Some companies continue to pay straight salaries, and others keep on with simple commission plans, but according to his observation straight salary and straight commission plans appear to be now in the minority.

Measuring the relationship between the salesman's task, his results, and his compensation is no easy task, Mr. Tosdal pointed out. The salesman's task may include some promotional work, building of goodwill, settlement of complaints—in which case volume of sales alone is evidently not a satisfactory measure of performance.

"The result of the salesman's work is not easily measurable in the definite terms with which industrial managers are accustomed to work in measuring the production of machines, or of men engaged in turning out commodities," he continued. "In the broadest sense, the principal results attributed to the salesman's work are in reality the composite results of product, policy, sales methods, and the activities of other departments of an enterprise."

MEASURING PERFORMANCE

"The measurement of the salesman's performance requires, first, the determination of bases and units of measurement; second, the collection of information regarding the performance in terms of those units; third, the development of standards of performance for individuals; and, fourth, the interpretation of conclusion, and determination of action called for by the comparisons of performance with standards and with other pertinent information."

Sometimes the incentive elements which have been added to salary plans have been based on the quota or "break-even" point; also better market analysis and research have given many firms a sounder basis for setting compensation standards, Mr. Tosdal said.

"Better performance on the part of salesmen may come in many cases more soundly from improved selection, training, and supervision, than from the addition of compensation 'gadgets,'" he went on.

CONTESTS USEFUL

"Careful study of the salesman's work; follow-up in the field; the application of personal and trained supervision; the use of suggestion, praise, and censure on the basis of facts, have provided incentive and stimulation, without modification of compensation plans."

"Contests among salesmen continue to hold their own as a useful device for stimulating salesmen, at least temporarily, to greater efforts. The wide diversity of opinion as to the usefulness of contests likewise persists, though these differences are explainable in terms of attitude of management toward incentives, and in the portion of the salesman's task to be emphasized."

"Changes in merchandising, the development of new products, better designing, resulting in more attractive products, improved packaging, more careful selection of selling programs, the use of market analysis to determine more nearly consumer attitudes and preferences—all of these contribute so largely to the end result, which appears on the salesman's record, that changes in compensation plans appear minor in consequence."

Monthly Letters Will Keep Revere Copper & Brass Co. Employees Well Informed on Company Policy

NEW YORK CITY—Inaugurating a new step forward in the industrial relations policies of his company, C. Donald Dallas, president of Revere Copper & Brass, Inc., has sent out to all company employees the first in a series of monthly "Know Your Company" letters, designed to keep shop workers as well as executives informed of the business and financial conditions of the firm.

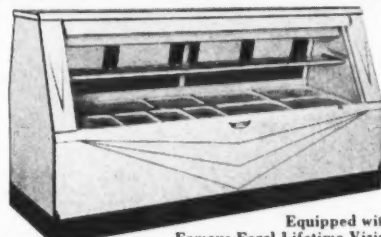
In the hope of promoting better understanding between employees, management, and stockholders, the letters also will discuss the why and wherefore of various matters of company policy.

"For years," explained Mr. Dallas in a message to all members of the Revere organization which he included in the first of the series of letters, "it has been the custom of management to issue reports to the people whose money invested in the business makes it possible to operate. Hundreds of reports are also issued to federal and state departments."

"We now propose to periodically issue reports in the form of letters to all employees of Revere, no matter what position they may hold, so that all will have a better understanding of the problems of the company, and how they are met."

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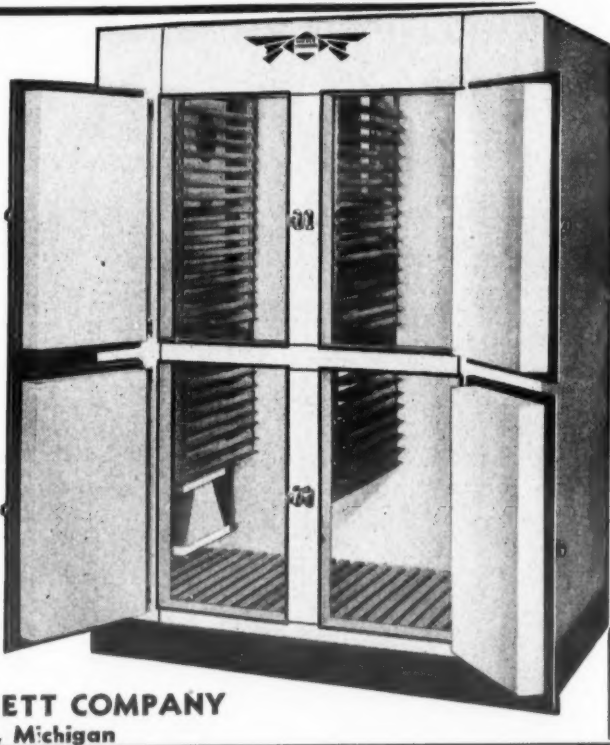
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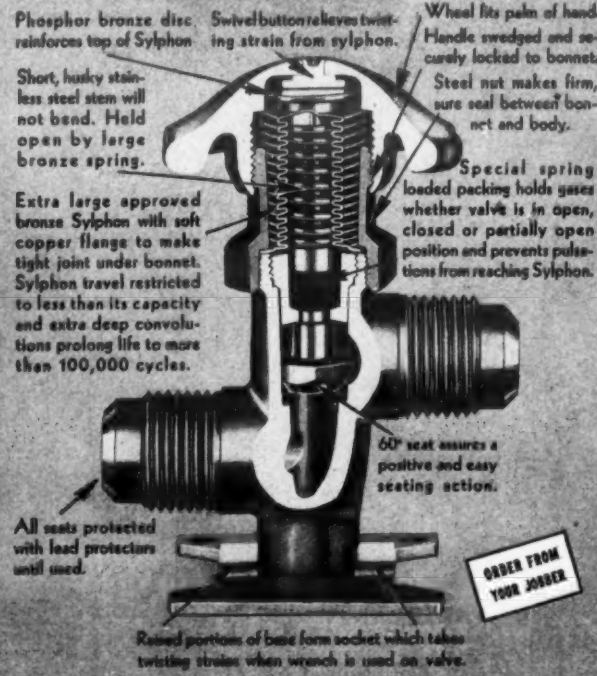
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